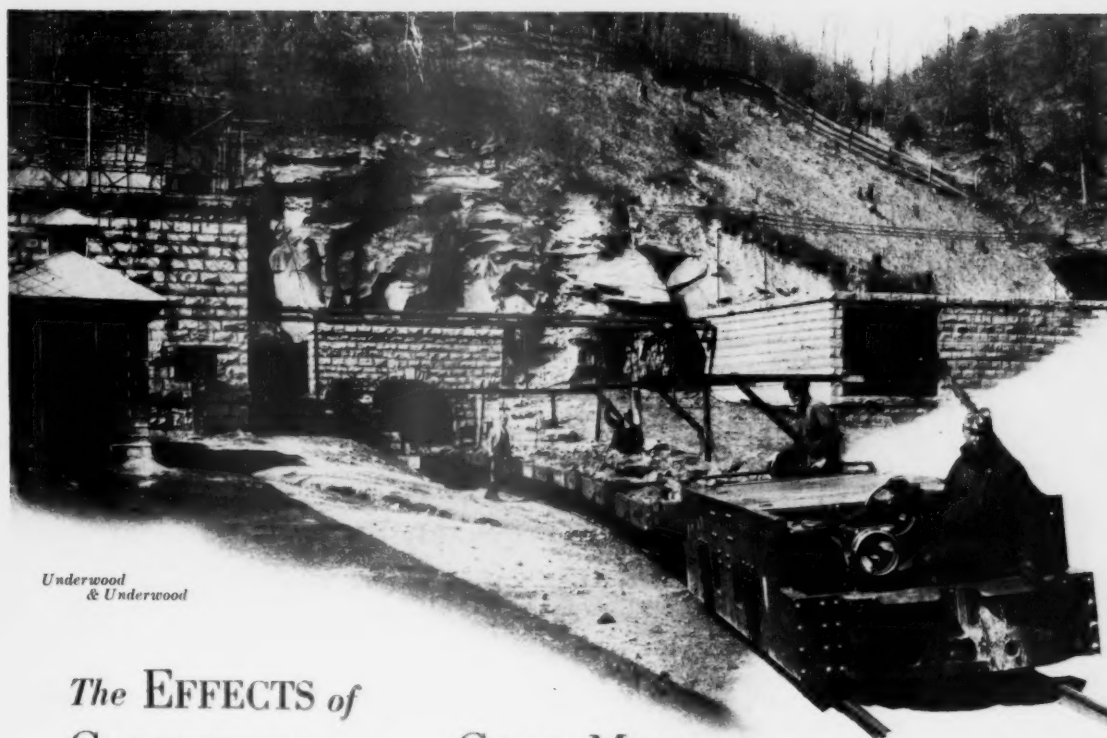


The MINING CONGRESS JOURNAL

FEBRUARY, 1932



*Underwood
& Underwood*

The EFFECTS of
COMPETITION *upon* COAL MINING

G. B. Southward

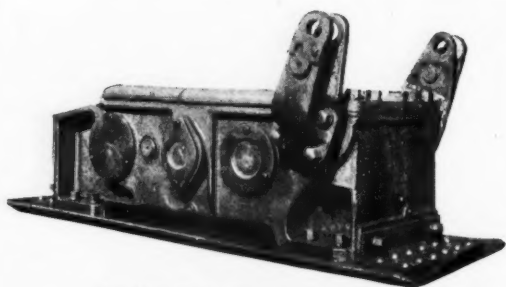
MINE TIMBER SERVICE RECORDS

R. M. Wirka and Reamy Joyce

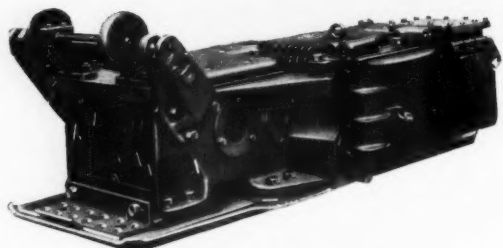
CUT-OUTS *for* TROLLEY WIRES

R. I. C. Manning and J. J. Forbes

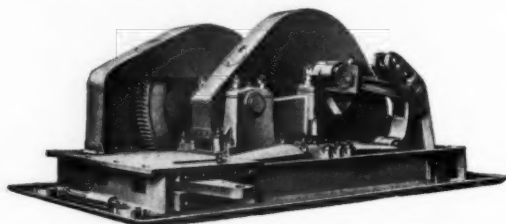
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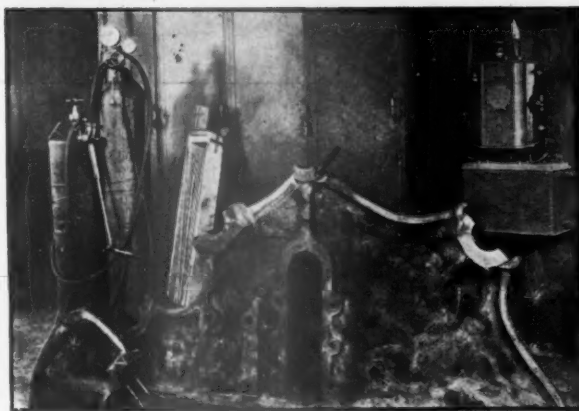
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THE MINING CONGRESS JOURNAL



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**February
1932**

VOLUME 18, NUMBER 2

A Pivoted Rear Conveyor

is a Feature of the Jeffrey 44-CC

THIS rear or discharge conveyor on the Jeffrey 44-CC Loading Machine can be swung to a 45° angle in either direction and adapts the machine for loading on a curve especially in room necks and cross cuts.

Like the Jeffrey 44-C Loader the 44-CC will load out coal efficiently under any system of mining to which mechanical loading is applicable.

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The above illustration shows the rear or discharge conveyor swung to a 45° angle. The complete machine is shown left below.



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The MAN who the COAL

The natural question of any man these days in response to a business suggestion is, "What do I GET out of it?"

The man who attends
sees new machinery

He is brought face to face with the most modern equipment yet developed for the efficient and economical production of coal by the world's foremost manufacturers. He can examine it, ask questions about it, watch it operate, compare it. He can familiarize himself with new improvements. He can judge the advantage, to himself, of everything he sees. He can accomplish what would otherwise be a several-weeks buying job in one or two days time. Worth anything to him, this information? Worth *money*. Worth dollars and cents.

The man who attends
learns new methods

He hears discussions on virtually every phase of coal mining by leaders in every branch of the Industry. He listens to practical and intensely interesting talks on shooting and drilling, cutting and loading, hauling, cleaning, and a score of other elements of coal production. He is told about new and better ways of doing things; more effective safety measures; actual-practice behavior over long periods of time, of all kinds of mining equipment. Is this expert, proven knowledge worth something to him? It's worth *money*!

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CONVENTION!

The answer, in reference to the annual American Mining Congress COAL CONVENTION is, "MONEY! Dollars and cents!"

He not only renews his acquaintance with many old friends whom he meets there, but he meets new men from every coal mining field, men in all branches of mining, men from many foreign operations. He can talk over business conditions in different sections of the country with men who know them at first hand. He can exchange views, learn what is going on and who is behind it in all quarters of the industry. He can satisfy his curiosity on any mining subject by discussion with experts in each. An opportunity of this sort is worth many times the cost to any coal man in America.

*The man who attends
meets new men*

Because of the foregoing benefits, every man who attends the CONVENTION should be worth more to himself and to his company as a result of it. He is better equipped to handle any job in mining he happens to hold. He has made stimulating contacts with other men whose problems are also his problems, many of which they have successfully solved. He has learned how to do his own work more efficiently and has at the same time gained a much broader view of the Industry as a whole. He is a better mining man in every department and will return many times over in improved production, the moderate expense to his company of sending him there.

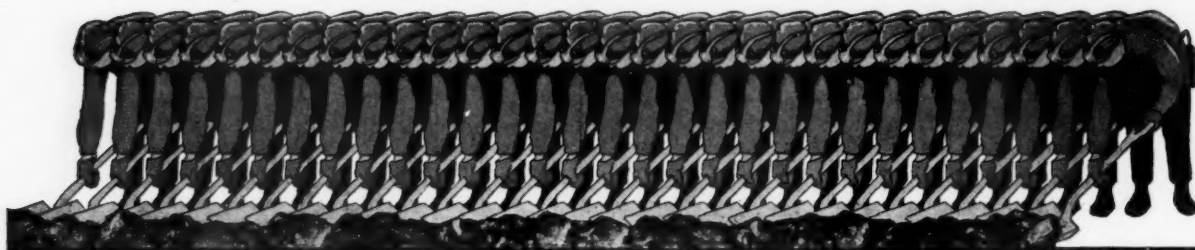
*The man who attends
increases his value*

MINING CONGRESS

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MAY 2 - 7, 1932

There is nothing experimental about JOY'S



30-H.S.P. *

300 TONS per day is an easy average for completely mechanized operations under general conditions—as much as thirty good hand shovelers can do. Record performances go as high as 860 tons per 8-hour shift. This loading ability means concentrated workings, simpler haulage, increased safety and reduced costs per ton. Joy Loaders are flexible and adaptable to most mining systems. They travel on or off track and move quickly from place to place under their own power. One man controls all operations. Because of their flexibility, many factors ordinarily deterrent to mechanical loading are overcome successfully by Joy machines. Joy Loaders are operating under conditions similar to yours. They are giving the greatest service under the greatest variety of conditions. That is why they are continuing to load the highest percentage of all mechanically mined coal. Let us survey conditions at your mine and prepare reports covering the possibilities of Joy Loaders at your properties—no obligation to you.

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***Hand-Shovel Power**

The 5-BU Joy Loader, shown here, operates in a seam of 60 inches or more. Open or permissible type available.



The 7-BU Joy Loader will operate in a seam as low as 48 inches. It is also made in open and permissible types.



*A Journal for the entire mining industry
published by The American Mining Congress*

The World's Greatest Problem

WHAT is money? An instrument of convenience; a measure of value; a common denominator of business transactions; a representative of the results of accumulated labor.

What is its purpose?

To facilitate exchange; to represent accumulations; to stabilize public thought as to the value of things; in other words, a tangible and interchangeable measure of the value of things.

What are its qualifications?

1. It must be made legal tender for the payment of debts by governmental enactment.

2. Its volume should be uniform and sufficient in amount to meet the demands of trade.

3. Its volume should adjust itself to such fluctuations as to meet the requirements of good and bad business conditions but not susceptible to radical changes.

4. Its amount should bear a proper relation to some specified commodity or commodities which cannot be made to fluctuate greatly in amount.

5. Gold has in recent years been accepted by the Western world as most nearly meeting these conditions although on several occasions production has so increased as to inspire efforts for its desertion as a unit of measurement.

6. Gold standard nations are becoming less in number as the concentration of gold in a few nations makes it impossible for other nations to hold enough of that metal to support their currency systems.

7. This concentration of gold in a few centers constitutes a grave danger to the gold standard and calls for more intelligent action than it has yet commanded. If the world outside a few nations is not to be forced to a basis of fiat money with no security beyond the credit of such governments themselves, a safe and sufficient money medium must be created.

8. Such a condition would be fatal to world

trade, forcing business between nations to the medieval system of barter with no common denominator for business transactions.

9. It is generally admitted that there is not gold enough in the world upon which to base a currency sufficient to meet the demands of world trade.

10. This condition leads to, and almost requires the abuse of bank credits in times of prosperity, a kind of inflation more dangerous than fiat money because its amount is unknown and uncontrolled.

11. These conditions led to the panic of 1929 and will recur again and again unless some plan is devised by which a money system shall be created of greater volume than can be safely based on gold. Such money like gold currency must be based upon commodities not subject to great fluctuations. Such money within limited ratios of fluctuation must bear a fixed relation to the metallic reserves upon which it is based.

12. There is but one metal which as an assistant to gold, can possibly meet these requirements. It is not necessary to name it. Its production throughout world history has been as uniform as the production of gold. It should be used as gold is used as the supporting reserve for paper currency, *at its current market value*. As that value shall increase it will support an increasing amount of currency thus gradually expanding the world's money in such manner as to change the relation between debtor and creditor imperceptibly and thus enable each to adjust himself to the changed conditions. The above is submitted as a plan by which the dangers to the gold standard may be averted; international trade may be stabilized; the greed of the selfish may be curbed; price levels stabilized and conditions created by which the owners of the world's wealth may more nearly control the yard stick by which it is measured.

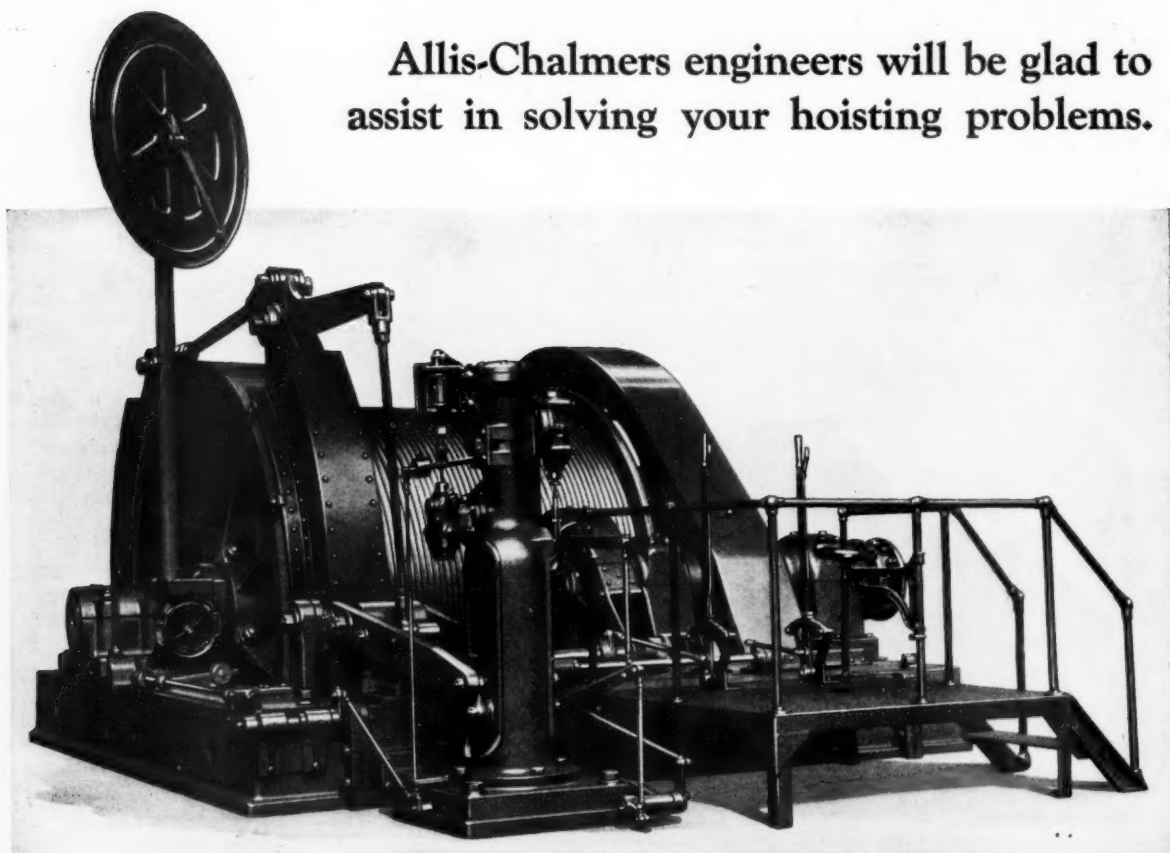
J. H. Calbraith

In the Anthracite Field



....this latest Allis-Chalmers electric hoist is installed in the coal field at one of the mines of the Lehigh Valley Coal Company. It is of the single drum type with welded plate steel drum construction, powerful parallel motion structural steel post brakes, oil actuated brake engine with oil pressure system, complete safety equipment and many other salient features.

Allis-Chalmers engineers will be glad to assist in solving your hoisting problems.



ALLIS-CHALMERS

— Allis-Chalmers Manufacturing Company, Milwaukee —

The MINING CONGRESS JOURNAL

FEBRUARY, 1932
VOLUME 18
NUMBER TWO

Editorials

The Turning Tide

NOT long ago an able speaker said, "A depression is a period when people are obliged to get along without things their forefathers never had." Which is true, of course, except that we do not miss what we have never had. There has been considerable wailing from sources where wailing was out of order; there has been much just complaint against an economic system that has thrown millions out of work and made them charity objects. It is difficult to be optimistic, to be brave, on an empty stomach.

State and national legislatures have been in session. Everyone has had an opportunity to blow off steam, to air his view as to the causes and remedies for the depression. In the process there has been much confusion, misunderstanding and misguided effort. Underneath the din and over and above it, the constructive forces have been definitely working to bring back employment—not prosperity as we recognize the meaning of that word—but a job for everyone who wants to work.

There are 48,000,000 gainfully employed persons in our country today. They have a purchasing power of great magnitude. Fear has prevented them from spending. Capital has gone into hiding. The key to recovery, apparently, is credit. Now, thanks to Mr. Hoover and Congress we have the Reconstruction Finance Corporation, designed to bolster credit. The Federal land banks have been fortified. The railroads have been helped materially through their wage negotiations. Inventories in many industries have been liquidated; labor everywhere, both general and white-collared class, has accepted reductions so that payrolls are wieldy. The automobile industry is showing its courage and faith, and business large and small has adopted the idea that business—their business—will be largely what they make it.

Determination is a characteristic of America. With all the forces underway that characteristic will win. Recently the American Cannery Association displayed at its convention a large placard saying, "We hung a man last night for talking about the depression. P. S. We still have the rope."

Let us have less wailing and more hanging.

The Power Tax

A STORM of protest hit Congress in the proposal of the Ways and Means Committee to place a tax on purchased electric power. The committee has had before it such proposals as lowering income tax exemptions—a sales tax—a proposal to increase the cost of postage to 3 cents an ounce; during and after the war we were familiar with nuisance taxation; we bore it without protest because it seemed our duty, but no one

approved. The re-assessment of these nuisance taxes can be borne again, but the proposed tax on electricity met with violent opposition, not from the individual taxpayer, who isn't so easily aroused, but from industry which purchases large quantities of power. In the mining industry the trend has been distinctly away from individual generation of power, and to purchased power. Any tax on this purchased energy would add an insurmountable burden.

The mining industry has been at low ebb. It has no margin from which to pay increased taxation. It faces gigantic problems in keeping its workers employed. No avoidable burden should be placed upon its back. Congress must increase its revenue; that is obvious, but in finding ways and means for so doing, it must be careful not to kill the industry from which it secures its present revenue. Any additional burden at this time on mining will decrease instead of increase revenue from it.

Davis-Kelly Bill

SENATOR DAVIS, of Pennsylvania, should know what he is about. He is an experienced politician and a man of great ability and attainments. Yet he has introduced a bill to "aid the coal industry" that will bring bitter opposition from the coal people generally.

While Secretary of Labor Mr. Davis heard a great deal about coal. He has made at least one speech before The American Mining Congress declaring against government control of coal. He bases his proposed licensing plan upon the Interstate Commerce Commission plan, which he contends, is superior to the jungle law policy under which the industry operates.

Whether he is right or wrong remains to be determined. We now have government regulation of the railroads, the telephone, the telegraph, electric power and pipe lines. We have no hope that Commission control can help coal. But before we condemn the Davis-Kelly bill too drastically it might be well to keenly dissect it with a view to determining just what possibilities it may offer. No matter which way coal turns it is faced with legislation if it shall improve its position.

Where Cooperation Spells Prosecution

considerable hope for the industry-wide adoption of the Sales Plan of the National Coal Association. They had

"WHAT-TO-DO"; "What-to-do" seems to be the cry of the coal industry. Coal has never been able to agree, within its own circle, upon any concerted plan. There was

succeeded in bringing the various sections more nearly into agreement than ever before, and just when success could at least be discerned with a microscope, the Department of Justice whams down with their verdict of "Thou Shalt Not."

Legislation of one kind or another seems to be coal's only hope, and every thinking coal man has been opposed to legislation as a way out. Apparently the door of the Sales-Agency is closed. Coal will be discouraged, but since it has been found that the industry *can* agree upon something, its plight is not hopeless.

Wages or Wage Scales

than wage-scale maintenance. Their action has received universal approval. Wage scales are again to the front in the union fields in the coal industry. Illinois' contract with the United Mine Workers of America terminates on April 1st. A new scale must be agreed to. Whether the union will distinguish between wages and wage scales remains to be seen.

The New York building trades must answer the request of the employers' association for a 25 percent decrease in the union scale. Everywhere the question of wage reduction has been paramount. Most industries have reduced the wage rate. The unions, manned for the most part by practical, intelligent leaders, will undoubtedly recognize the discrepancy in a scale based upon 1929 industry, as against 1932 industry. They may be expected to do some bargaining but nothing can be gained by maintaining wages on paper.

Congress— the Goat

people would have no cause for alarm, if it were not for the legislators. * * * They are steadily leading our country to its ruin." He spends considerable energy in pointing out the unwise expenditures of Congress, from its bonus policy for veterans to the tariff.

Perhaps all Mr. See protests against is true. We confess we do not know. But granting that he is right, *whose fault is it* that Congress did these things? Does he, or anyone for that matter, really believe that *any* legislation can be passed by our National Congress that does not have the backing of a substantial portion of our citizens? There may be Congressmen who introduce bills for personal reasons, publicity, or what not, but introduction of a bill by no means insures its adoption.

It seems to us that Mr. See's quarrel, and the quarrel of those who so vociferously endorse his protest, is not with Congress, but with the people back of the objectionable legislation—that great organized army that is successful in getting over their demands.

Congressmen are human beings. They are no more altruistic than the rest of us. When the majority of their constituents want a piece of legislation, it is their duty to try to obtain it. (They had better if they want their job.) And after all, isn't that the genius of our country?—"Of the people—for the people—by the peo-

ple?" Some other system may be better. But we do not have it. Let us stop berating Congress. On the whole they have done a pretty good job.

Six Hours— Five Days

the machine performing many duties heretofore performed by human labor. With the millions now out of work, it has followed that this subject should be one of live interest. Secretary of Labor Doak appointed a committee of experts to consider the question. The committee recently made its recommendations.

It recommends study in the mining, quarrying, crude petroleum and other industries to determine whether displacement of workers therein is decreasing or increasing. It recommends that workers displaced by machinery be absorbed into other jobs before displacement, that they be protected during unemployment, and be assisted in finding re-employment, and that they shall not be discharged until such re-employment is found. They strongly feel that "industry must provide opportunity for employment by reducing working hours, where necessary, stabilizing and regularizing employment and providing wages for a proper minimum standard of living." Unless this is done, it is their conclusion that there must be a nation-wide system of compulsory insurance against unemployment.

To what purpose the report of the committee will be put is not yet announced. Presumably its recommendations are for legislative purposes. In that event, we shall see proposals making compulsory (1) the six-hour day; (2) National unemployment insurance; (3) Compulsory guarantee of a minimum wage scale; (4) Laws making it unlawful to discharge an employe without first having secured him another job, and (5) the establishment of a national employment agency, which will in effect control industry.

All of these things are in the future, but the trend toward such thinking is undeniably a part of today.

Machine Conscious

THE coal industry thinks similarly along some lines at least. Recently the American Mining Congress in arranging for its program for its Annual Cincinnati Convention and Exposition held group meetings of the Program Committee in various sections. It found a surprising similarity in the views of these sections. It was at once apparent that the industry has learned its mechanical lesson, which it has continuously studied for eight years. When it first started its studies it was wholly unconvinced that coal *could* be loaded mechanically or that it was feasible to clean it mechanically. It is now universally admitted that mechanical loading and mechanical operation, generally, are *feasible*, but granting their feasibility, what does it profit them to mechanize. Therefore the recommendations are unanimously for a program that will tell the results of mechanization. What operators want to know is: "If I clean my coal, what do I gain? Can I sell it for a higher price? Of just what advantage is it?"

The program is rapidly taking form, and the indications are that these questions will be answered.

Taxation and Federal Social Legislation

By James A. Emery*

We are not merely facing a national deficit, at the established rate of expenditure, by the end of the fiscal year 1932, but we are being urged from many sources to adopt a program of Federal social legislation alike threatening to our economic and political future. As we approach this situation, we must realize the revolution in taxing authority through which we have passed if we are to appreciate the fact that our real remedy must lie in an enlightened and aggressive public opinion, rather than in any form of enforceable constitutional restraint.

THE AMOUNT and method of American taxation is a permanent economic issue of the first importance. It is accentuated in this hour by declining income and proposals for greater taxation. Reliable public revenue is indispensable to our individual and collective security. Contribution to the support of Government is a badge of citizenship. It is not the fact of taxation but its amount and form which may transform the levy for the support of the state into an impressive and injurious burden. We may discuss interminably methods of excise, forms of assessment, tax bases, incidents and shifts of excise, but the root of our problem is the size of the expenditure. For that there is no effective control save the interest of the citizen in his government and the realization, so frequently lacking, that there is no escape from the burdens of taxation unless one inhabit a prison or a poorhouse. We now, perhaps more than ever, possess a tax consciousness developed into an articulate public opinion respecting the functions, services and costs of government. Now, as never before, the direct bearer of the tax burden should be rightly questioning whether government should annually expend one-sixth of the nation's yearly income.

We know upon undeniable authority that, since 1913, governmental expenditures in all its forms have increased twice as fast as national income. While

the Federal Government decreased the national debt from its peak by nearly \$10,000,000,000 and increased its expenditures by little more than 5 percent in a decade, the states are spending 34 percent more than they did in 1923, and the local subdivisions more than 26 percent. State and local governments have been increasing their expenditures at the rate of \$1,500,000,000 annually. Until recently, we have been saving in Washington and wasting in the state capitals, draining our Federal gains through our municipalities, counties and townships.

This is evident from the fact that while, in the last decade, the national debt was cut over \$9,000,000,000, state and Federal debts combined increased in an equal amount. For the last year for which we have reliable information, 1928, the gross expenditures of state governments amounted to \$1,826,000,000, an increase over a five-year period of practically 50 percent. During the same time the expenditures of local governments increased nearly 33 percent and amounted, in 1928, to \$6,813,000,000. Thus, for that year, the expenditures of Federal Government were 31½ percent of the total national expenditures, while those of the states and their subdivisions accounted for 68½ percent of the vast total.

WHAT do these vast figures mean in terms of the production, saving and self-denial of the individuals who bear the burden? It means now annual expenditures for and by the American

Government, in all its forms, of a sum equal to more than half of the savings banks accounts of 52,000,000 depositors. It means a sum one-third greater than the value of all the crops raised on 6,500,000 farms, employing 340,000,000 acres of land. If our annual wheat crop, the largest in the world, were turned over to our state governments in 1929, one would be required to add \$500,000,000 to cover their expenses, while the net earnings of every corporate form of activity in the United States would not equal the expenditures of local governments in a single year. While we lead all nations in industrial production, the net income of all the manufacturing corporations in the United States, in 1930, would have to be multiplied more than three times to cover the combined expenditures in a single year for state and local government. You will remember Sue's tale of "The Wandering Jew," condemned, for his insult to the Saviour, to wander over the world until He appeared again. Had that unhappy figure dropped \$13 every minute of his life, from the first year of the Christian Era to this, the total sum would about equal our annual governmental expenditure in all its forms in the United States.

Too many of our people are merely interested in shifting the tax burden rather than lessening the expenditure. In fact, they want more service and assistance from government and believe they can escape sharing in the public burdens they establish. Yet taxes are inescapable social overhead. They are hidden in our clothes, concealed in our food, ride with us on our trains and boats, share a seat in our car, grin cynically from within the very pavements over which we ride, and are flicked from the ashes of our cigars and cigarettes, one-half of the cost of which is a revenue charge.

NOW a new factor clouds the future of taxation. A deficit may arise from every increased expenditure in excess of anticipated revenue, or from the decline of rev- (Continued on page 18)

*General Counsel, National Association of Manufacturers.

Presented at Group Conference, The American Mining Congress, December 8, 1931.

SILVER



in the Congressional limelight

AS CONGRESS took on accelerated speed early in the new year, solution of the silver situation was being pressed in the legislative chambers and tax increase proposals, reconstruction loans and Muscle Shoals disposition were occupying a conspicuous position. Members of the House of both parties from the 11 western states formed an organization to actively work in behalf of improving the silver situation. This group, comprising the Representatives from Washington, Oregon, California, Nevada, New Mexico, Arizona, Utah, Colorado, Montana, Idaho and Wyoming formed a steering committee consisting of Representatives Colton, Republican, Utah, chairman; Arentz, Republican, Nevada; Leavitt, Republican, Montana; Eaton, Republican, Colorado; Hill, Democrat, Washington; Taylor, Democrat, Colorado; and Douglas, Democrat, Arizona, and beginning January 20 began a series of hearings to develop all possible angles on the silver situation with a view to reaching some measure of relief. Recent silver bills presented to Congress were by Senator Wheeler and Representative Evans, Democrats, Montana, to establish a bimetallic system of currency employing gold and silver, fixing their relative value, and providing for their free coinage; Senator Borah, Republican, Idaho, for the issue of ounce coins and Treasury notes for payment of domestic and foreign debts to revive world trade and commerce, but without interference with the gold standard; Representative McKeown, Democrat, Oklahoma, and Representative Glover, Democrat, Arkansas, for an international conference, to fix the ratio of the money value of gold and silver; Senator Kean, Republican, New

Jersey, for a treaty with Canada for stabilization of Canadian currency with that of the United States; Representative Martin, Republican, Massachusetts, regulating the quality marking of articles made of silver and alloys; and Representative Arentz, for subsidiary coinage of silver.

Coal Consolidations

THE MINING INDUSTRY is the subject of a number of important bills, including measures by Senator Davis, formerly Secretary of Labor, and Representative Kelly, both Republicans, Pennsylvania, for stabilization and regulation of the bituminous industry under a federal coal commission. This bill is a revival of the measure of Senator Watson, Republican, Indiana, introduced four years ago at the request of the miners union and strongly opposed at that time by coal operators, railroads and commercial organizations. The new measure has in addition to the union backing the endorsement of the American Federation of Labor. "The Government must furnish leadership if intolerable conditions are to be remedied," said the Congressmen in presenting the proposed legislation, which they declare does "not contemplate any arbitrary governmental interference with the industry." The bills would authorize coal companies to combine into marketing pools and selling associations and agree upon production and prices subject to Government review. As a condition to exemption from the anti-trust laws, the pools and associations would have to recognize the right of miners to bargain collectively and to solicit members in non-union districts.

A bill appropriating \$50,000,000 for relief of coal miners in Pennsylvania, West Virginia, Kentucky, Ohio, and Indiana, through the Public Health Service, and vocational training of idle miners for other work by the Department of Labor was presented by Representative LaGuardia, Republican, New York. Hearings were concluded before the Senate Manufactures Committee on bills of Senators La Follette, Republican, Wisconsin, chairman, and Costigan, Democrat, Colorado, for relief of the unemployed, following which statement was made that 88 Red Cross Chapters were dispensing relief in distressed coal mining communities. Following conclusion of hearings which began last fall, Senator LaFollette reintroduced his bill to establish a National Economic Council to stabilize industrial conditions and employment. Study and recommendations as to coordination of various branches of mining and other lines of industry by a board of 25 members is proposed by Representative McSwain, Democrat, South Carolina. In a measure by Representative Lewis, Democrat, Maryland, stabilization of production and employment would be sought through national trade associations operating under the Federal Trade Commission applying to corporations employing more than 50 persons in the mining, gas and petroleum distribution and other industries, the mining classification to be made by the Bureau of Mines. The Senate voted to distribute 40,000,000 bushels of wheat from the Federal Farm Board to people in distress regardless of cause which would benefit stricken coal regions. House and Senate voted to establish a temporary reconstruction Finance Corporation to loan \$2,000,000,000 to financial institutions to

aid in financing commerce and industry. Appropriations of from 20 to 45 million for loans to enable farmers to obtain fuel, oil and other supplies for 1932 crop production were sought in bills by Representatives Vinson, Democrat, Georgia, and Summers, Republican, Washington, and Senator Wheeler, Montana. Senator Smoot, Republican, Utah, proposed a million-dollar appropriation for a plant for investigations of the Bureau of Mines at Salt Lake City, Utah, and Senator King, Democrat, Utah, proposed an expenditure of \$10,000 by the Bureau for fuel research at that point.

Public Lands

SENATOR KING suggested an interdepartmental committee on conservation of natural resources and a conference of five representatives from each of the public land states to carry out plans which they may agree upon. A bill was passed by the Senate authorizing patents to 160 acres of land in New Mexico at \$1.25 per acre which have been held under color of title for more than 20 years. Under a bill by Senator Walsh, Democrat, Montana, the Dakotas, Montana and Washington would be authorized to grant mineral leases for not more than 20 years on their land grants. Claims of citizens of Washington amounting to \$1,500,000 growing out of damages by fumes from the plant of the Consolidated Smelter Co., at Trail, B. C., would be paid under the terms of legislation proposed by Senator Dill, Democrat, Washington. Senator Smoot proposed an exchange of potassium lands in Tooele County, Utah, between the Government and private owners. Senator Walsh also proposed that authority be obtained from the Interior Department for the construction of pipe lines for the importation of natural or artificial gas into the United States. Conservation and operation of the naval oil and oil shale reserves would be entrusted to the Navy Department under legislation suggested by the department and introduced by Representative Vinson, Democrat, Georgia. Reinstatement of formerly denied permits and issuance of new applications for prospecting under the mineral leasing law was proposed in measures by Senator King and Representative Craig, Republican, California. Senators Carey, Republican, Wyoming; Wheeler, Montana, and Representative Carter, Republican, Wyoming, proposed to issue unrestricted patents to public lands taken under agricultural entries

MINING HEADLINERS IN CONGRESS

WESTERN REPRESENTATIVES Organize To Aid Silver.

INTERNATIONAL Silver Conference Proposed.

BIMETALLIC Gold and Silver System Suggested.

COAL MARKETING Pools and Selling Associations Advocated.

FEDERAL APPROPRIATION Suggested For Coal Miners Unemployed.

REINSTATEMENT of Oil and Gas Prospecting Permits.

TAX HEARINGS Develop Request for 15 Percent Corporation Tax Rate.

INTERNATIONAL Conference To Reduce Tariff.

TIGHTENING of Anti-Trust Laws Against Monopolies.

RAILROAD, Utility, Oil and Gas Pipe Line Inquiry.

INVESTIGATION of General Labor Conditions.

MUSCLE SHOALS Lease Legislation.

where subsequently the lands are classified as non-mineral. Citizens of foreign countries would be denied the right to acquire oil lands in the United States if their governments denied like privileges to Americans under legislation sponsored by Senator McKellar, Democrat, Tennessee.

Tax Increase

INCREASED FEDERAL taxes are in prospect, the House Committee on Ways and Means conducting hearings on the subject with the expectation of presenting new levies in February. Officials of the Treasury Department recommended reimposition of most of the taxes carried in the 1924 law, including advance of the corporation tax from 12 to 12½ percent and of the surtax rate from the present maximum of 20 percent on incomes in excess of \$100,000 to a 40 percent rate on incomes of over

\$500,000, the new rates to continue until June 30, 1934. Farm organizations suggested a 15 percent tax rate on corporations and a tax on income from investments of Americans in foreign countries. An additional surtax of 2 percent on incomes in excess of \$5,000 was proposed by Senator LaFollette to meet a five and a half billion dollar public improvement outlay to provide employment. Examination of the tax returns from 1922 to 1928 from companies interested in the tariff was proposed by Representative Shafer, Republican, Wisconsin, in suggesting an investigation of influences affecting legislation.

Conference To Lower Tariff

ON A POINT of order by Representative Collier, Democrat, Mississippi, Chairman of the Ways and Means Committee, the House ruled out of order an amendment by Representative McGugin, Republican, Kansas, to Mr. Collier's bill authorizing an international conference to consider a reduction of present tariffs, to provide a duty of \$1.03 per barrel on crude oil and 50 percent ad valorem on refined products. Another amendment to place aluminum on the free list was defeated, as was a proposal by Representative Celler, Democrat, New York, for reciprocity with Canada. The Collier bill as passed by the House also provides for action on tariff changes recommended by the Tariff Commission by Congress instead of the President. As a substitute, Senator Vandenberg, Republican, Michigan, who favors a copper tariff, which is not now subject to action by the commission as it is on the free list, proposed that the commission consider articles on that list as well as dutiable articles, and make its reports both to Congress and the President, and eliminating the international conference. Representative Hoch, Republican, Kansas, introduced a bill for duties of \$1.03 per barrel on crude oil and 50 percent ad valorem on refined products. Repeal of the flexible provision of the tariff under which duties may now be changed by the commission is proposed by Senator Hull, Democrat, Tennessee, and Representative Lewis, Democrat, Maryland, formerly a member of the commission, proposed various changes in the provision. Senator Jones and Representative Horr, Republicans, Washington, introduced measures to base tariff duties on the difference in monetary standards in the countries of origin. A 5 percent annual reduction (Continued on page 33)

MARKET TRENDS

Copper

INTEREST IN COPPER the past month has centered around the Tariff Commission Report on Costs of Production, and on measures taken for stabilization of production by Copper Exporters, Inc. The Tariff Commission report in response to a Senate Resolution, showed that United States production in 1930 was 40 percent of world total, at a cost of 13.29 cents per pound of recoverable copper vs. 11.81 cents per pound for foreign metal, in each case allowing for depletion and interest. U. S. copper smelters on a production of 1,400,000 tons of refined copper per year, use 61 percent domestic ore, 12 percent domestic scrap, and the balance from imported sources. The copper pact provides that when the selling price has been 12 cents per pound for 15 consecutive days, the agreement should be null and void; also, when surplus stocks shall have become less than the aggregate shipments for the preceding 4 months, the pact shall become inoperative; finally, it shall automatically expire on December 31, 1932.

The producers of 93 percent of American output agreed to hold production below 60,000 tons per month, which would reduce world production by about two-thirds. World consumption is estimated at from 90,000 to 100,000 tons per month. Announcement was made that "Companies which enjoyed special sales advantages abroad, relinquished those privileges and now all members of Copper Exporters, Inc., participate in foreign sales on an equal footing."

With short stocks abroad, the month opened with expectation of foreign buying to cover early requirements. It was estimated that in from 2 to 3 months, the effect of curtailment would show in domestic stocks, based upon present reserves, now above ground.

A rise in production costs is inevitable, with such curtailment as is now in effect, and it is predicted that they will reach at least 10 cents per pound within 18 months.

The Nichols Copper Co., of El Paso, a subsidiary of the Phelps Dodge interests, reduced their monthly output from 8,000 to 3,000 tons of refined wire bars, and their working force from 325 to 175 men. The refinery will receive from the old C. & A. furnace at Douglas, 6,500,000 pounds monthly instead of 17,000,000

pounds as heretofore. The A. S. & R. Smelter at El Paso announced a 50 percent reduction beginning February 1 by which their 375 employees will work alternate months, 75 men being retained during the off months.

The second week in January domestic buying improved, and 4,000,000 pounds were sold for European account. By the third week in the month, notation was made of low stock levels in copper abroad, and the price advanced through 7½ cents to 7¾ cents per pound, with 7½ cents asked.

Criticism continued of the withholding of copper production figures. The *Engineering & Mining Journal* editorially stated that "The investing public has a right to know what is being done."

Prediction is made that peak consumption of 2,091,000 tons in 1929, will likely be exceeded within a few years.

Of exceptional interest to United States producers, are the figures recently given out on Northern Rhodesia copper reserves. Roan Antelope costs were given as 7.17 cents for electrolytic copper in America, and included all costs except interest on bonds, and depreciation. This plant was operated at two-thirds capacity, shipping its concentrates to New Jersey.

Rhokana Corporation, after recalculation of ore reserves, announced them as 270,780,000 tons averaging 4.3 percent copper. This company also owns a one-third interest in Mufulira Copper Mines, Ltd., with reserves of 162,000,000 tons averaging 4.14 percent copper. The N'Kana mine with 127,000,000 tons of 4 percent ore and 18,500,000 tons of 5.85 percent ore; N'Changa with 93,000,000 tons of 3.51 percent ore; N'Changa West, with 46,500,000 tons averaging 17 percent; and Chingola with 2,000,000 tons averaging 17 percent, give definite knowledge of this area.

Lead-Zinc

THESE METALS began the new year with little change. In lead, purchases about balanced production. Zinc stocks continued to decline from 143,618 tons at the close of 1930 to 129,825 tons December 31, 1931. Production in 1930 was 504,463 tons and in 1931, 301,073 tons. In 1930, the price range was from 3.95 cents to 5.45 cents, and in 1931 from 3.125 cents to 4 cents.

The fourth week in January zinc sold

in East St. Louis at 2.85 cents, the lowest price since 1895.

During the balance of the month zinc output continued at a low scale, and lead buying was moderately good.

World production figures showed a monthly average in 1930 of 130,254 tons and in 1931 of 95,563 tons. The third week in January inquiries were made for lead in carload lots, at 3.55 cents to 3.75 cents per pound.

Announcement was made that the A. S. & R. has taken over the management of the Mt. Isa Lead mines in Australia.

Nickel

DEVELOPMENT of platinum as a by-product of copper refining is announced by the International Nickel Company of Canada. Many new uses of nickel are appearing, among them nickel-clad steel for tanks used in the storage of corrosives; ship plates for hull and deck; "Ni-resist," consisting of 14 percent nickel, 6 percent copper, 2 percent chromium alloy, used for pipe fittings, condenser sections and miscellaneous forms in the chemical, oil refining and other industries for corrosion and mild heat resistance; chromium nickel-iron alloys in sulphite paper mills; incochrome-nickel in dairy equipment; monel metal in laundry machinery and high speed centrifugal separators; and white nickel into buildings for both internal and external fittings.

The Vatican State is the twenty-fourth state to include pure nickel in its currency, which is now legal tender throughout Italy.

Gold

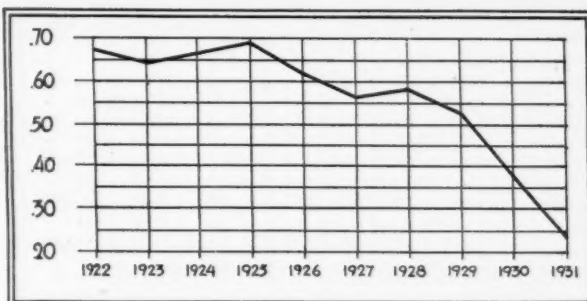
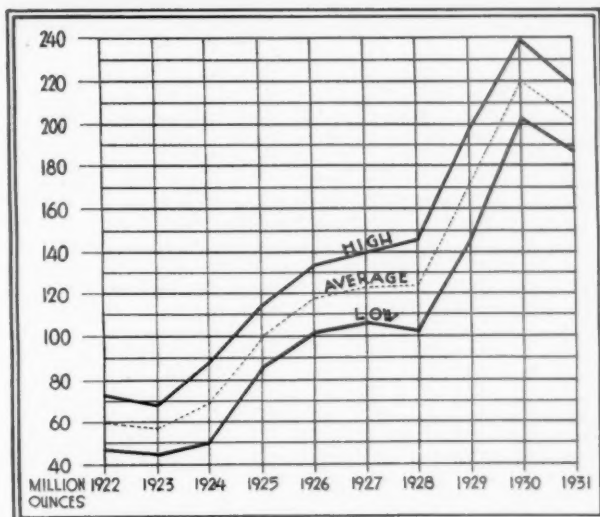
BANKERS STATE that in theory the United States should continue to receive gold throughout 1932. The past year saw the greatest turnover of gold in history, amounting to \$1,751,520,100, with a net loss of \$219,191,500 to the United States.

Mr. Thos. F. Woodlock, in a recent issue of the *Wall Street Journal*, discussing "Why Quit Gold," said that the United States can not be forced off the gold standard; the only possible purpose can be to inflate prices.

Meanwhile many unemployed miners are turning to gold prospecting and many old operations are being re-opened. Gold receipts at the Helena office of the Mint have doubled; those at Boise have trebled and at Seattle increased to \$10,000,000.

Potash

INCREASING INTEREST is manifest in the potash deposits of Texas and New Mexico. Early in January, 1,200,000 acres of potash-bearing land were leased in Eddy County, New Mexico. It is estimated that the recovery from this area will be from 9,000,000 to 11,000,000



Left, Shanghai silver stocks in fine ounces. Above, average price of silver per ounce in New York

tons per 640 acres. The average thickness of the deposit is 8 ft. The U. S. Bureau of Mines and the U. S. Geological Survey report 1 bed in New Mexico at 2,356 ft. depth, as showing 15.25 percent potash; others showing 9.12 percent to 9.45 percent. In Winkler County, Texas, they report at 1,205 to 1,876 ft. in depth, a deposit analyzing 5.0 percent to 13.6 percent potash.

The Texas Potash Company, of Dallas, is now constructing a \$2,500,000 plant near Odessa, Tex., on its 12,000-acre property, the deposit being operated at 2,100 ft. depth.

Aluminum

FIFTEEN YEARS ago, two-thirds of American aluminum production was used in the automobile industry. As in nickel, today many new uses are being developed for aluminum. The middle of January, Soviet Russia offered Aluminum, Ltd. (the foreign business subsidiary of the Aluminum Company of America), \$2,000,000 in Russian coal to Canadian ports, in exchange for \$5,000,000 in aluminum goods, the balance to be paid in gold or long term credits.

Announcement was also made that the Aluminum Cartel which has maintained a price of £85 a metric ton since November, 1930, has reduced the price to £80, due to high inventories of stock on hand.

Tin

THERE has been no material change in the tin market, since England went off the gold standard in September last, the slight falling off late in December having recovered 10 days later.

Antimony

THE NEW YEAR opened with antimony at 6.25 cents for spot carloads, and 3.95 cents for c. i. f. New York futures.

Silver

IN 1931 silver production decreased as follows: United States, 38 percent; Mexico, 15½ percent; Canada, 22 percent; South America, 16 percent; miscellaneous, 13½ percent; world total, 20½ percent.

The Indian Government sold 35,000,000 oz., of which 26,500,000 oz. went to London and 8,000,000 oz. to China. India, always a net silver importing nation, consumed 57,000,000 oz., which, however, was a decline of 40 percent over preceding years, due to political unrest, trade stagnation, and an excess of imports due to lower prices abroad for Indian products.

China consumed approximately 59,000,000 oz., a decline of 52 percent, and the lowest since 1925, attributable to floods, internal disturbances and un-stabilized markets.

In the United States, a greater unanimity of opinion has been noted during the past month than ever before, on the necessity for some form of silver stabilization. Regardless of any specific plan which may ultimately be adopted, certain outstanding facts enter into any consideration of the problem. Silver has three major uses: in the arts and manufactures, as subsidiary coinage for gold standard nations, and as the principal circulating medium, money standard, and store of wealth in the remainder of the world.

British India, regardless of the price of silver, has always been a net importer of silver, and a careful study of these data shows absolutely no relation between them.

The various plans now under consideration range from free and unlimited coinage of silver on a 16:1 ratio, through all phases and applications of bi-metalism; others providing for an interna-

tional world bank, for an international silver conference; for a Western Hemisphere-and-China Conference; for optional payments of war debts in silver; and for the recall of paper currency and the issue of metallic money only.

Upon one thing, however, opinion seems crystallized; and that is, that if silver can be stabilized, foreign trade of all kinds will begin to flow, factories will resume production, and unemployment will be lessened.

A committee of western representatives in the House, headed by Representative Colton, of Utah, is now holding hearings on silver stabilization, before which proponents of many of these plans are appearing in an effort to evolve a satisfactory solution upon which constructive legislation may be predicated.

Coal

AS 1931 PASSED into history, November sales topped the list notwithstanding the fact that consumption that month was 600,000 tons below normal and industrial stocks showed six weeks' supplies on hand. Continued warm weather exerted a depressing influence during January, except in the far West, where unusual snowfall and severe cold weather caused local business and railroad fuel to pick up.

Under the plan adopted for coal sales agencies "Appalachian Coals, Inc.," has named J. D. Francis, of Huntington, W. Va., to head that group, which will market 50,000,000-90,000,000 tons of high volatile coal from eastern Kentucky, Tennessee, West Virginia and Virginia. Western Kentucky operators meeting at Madisonville, approved the plan, and named a committee to draft a final organization.

Bills introduced in Congress by Senator Davis and Representative Kelly, of Pennsylvania, provide for Government licensing of all bituminous coal operations engaged in interstate or export business, through a five-member coal commission, serving at annual salaries of \$10,000 each. These bills are similar to those introduced some years ago at the behest of the United Mine Workers, and modifications would allow consolidations,

mergers, and cooperative marketing agencies.

The Interstate Commerce Commission has ruled that railroads must send the shipper a notice on unclaimed freight, where the consignee is unknown. The ruling also provides that demurrage charges will not run against the shipper without his knowledge, but that when it is necessary to notify the shipper, a charge of \$1 will be assessed and collected as freight charges.

An outstanding achievement of the coal industry in 1931 was the lowest accident rate on record.

According to the United States Bureau of Mines bituminous production fell off 19.1 percent and anthracite production 14.2 percent from 1930 figures.

Announcement of the du Pont de Nemours Co. that synthetic wood alcohol can be produced from coal in satisfactory quantities and at a price enabling it to compete with gasoline and fuel oil, brought hope to many coal producers for an ultimate market of excess coal production.

Price Range of

ANTHRACITE, per net ton, f.o.b. mines

Broken	\$7.50—\$7.50
Egg	7.00—7.75
Stove	7.50—8.00
Nut	7.50—8.00
Pea	5.00—5.75
No. 1 Buck	3.00—3.25
No. 2 Rice	1.60—1.85
No. 3 Barley	1.00—1.40

Price Range of

BITUMINOUS, per net ton, f.o.b. mines

WESTERN PENNSYLVANIA (High vol. and gas)

Lump	\$1.35—\$1.75
R O M	1.25—1.35
Slack .....	.80—.90

CENTRAL PENNSYLVANIA (Low Vol.)

Pool 1	\$2.00—\$2.25
Pool 9	1.70—1.80
Pool 10	1.50—1.70
Pool 11	1.40—1.50
Pool 18	1.35—1.50
Pool 71	1.80—2.00

WEST VIRGINIA (High Vol.)

4" lump	\$1.25—\$1.75
2" lump	1.00—1.50
Egg	1.00—1.50
Nut and Slack .....	.30—.75
R O M	1.00—1.25
Slack .....	.25—.60

WEST VIRGINIA (Low Vol.)

Lump	\$2.00—\$2.75
Stove	1.75—2.25
R O M	1.75—1.85
Slack .....	.75—1.00

EASTERN KENTUCKY

Block	\$1.50—\$1.75
2" lump	1.00—1.25
Egg	1.00—1.40
Nut	1.00—1.40
R O M	1.00—1.40
Slack .....	.30—.90

WESTERN KENTUCKY

Block	\$1.25—\$1.75
3" lump	1.15—1.35
Egg	1.15—1.50
Nut .....	.90—1.25
R O M .....	.85—1.15
Slack .....	.45—.90

OHIO

	Screened	R O M	Slack
Pittsburgh No. 8	\$1.35—\$1.75	\$1.15—\$1.35	\$.75—\$1.10
Hocking	1.35—1.75	1.20—1.40	.75—1.00
Pomeroy	1.35—1.75	1.20—1.40	.75—1.10

INDIANA

	Lump	Nut	R O M	Slack
Fourth Vein	\$2.15—\$2.50	\$1.75—\$2.00	\$1.60—\$2.00	\$1.25—\$1.60
Fifth Vein	1.75—2.00	.....	1.15—1.50	.85—1.10

SOUTHERN ILLINOIS

Lump	\$2.60—\$2.80
Egg	2.30—2.45
Stove	2.10—2.25
Nut	2.00—2.05
R O M	2.00—2.15
Slack	1.15—1.60

TAXATION AND FEDERAL SOCIAL LEGISLATION

(From page 13)

enue itself. Both factors threaten us at the present moment. However, in the Federal field, we have been relying for nearly half our revenue upon individual and corporate income taxes. The returns for 1930 express realistically the effect of our business decline on these sources of support. Taxable personal income declined, in 1930, 52 percent; corporate income about 50 percent. Yet, with the severe losses so widely and sharply expressed, we are not merely facing a national deficit, at the established rate of expenditure, by the end of the fiscal year 1932, but we are being urged from many sources to adopt a program of Federal social legislation alike threatening to our economic and political future. As we approach this situation, we must realize the revolution in taxing authority through which we have passed if we are to appreciate the fact that our real remedy must lie in an enlightened and aggressive public opinion, rather than in any form of enforceable constitutional restraint.

Prior to the Sixteenth Amendment, no direct tax could be imposed, save in proportion to the populations of the several states, nor could any indirect tax, duty, or impost be imposed save with uniformity. That is, it must be levied at the same rate on the same thing everywhere. But by the Sixteenth Amendment, while the distinction of a direct tax remained unchanged, and an income tax is such a tax, the limitation on its imposition was removed and no other limitation provided. Consequently, the Congress may now levy an income or other direct tax arbitrarily. That is, it may impose it exclusively upon one group of citizens, or upon different classes at different rates. Furthermore, this power must now be considered in connection with the authority to levy taxes for the general welfare. That is, the power to tax, without limi-

CENTRAL ILLINOIS

Lump	\$2.25—\$2.40
Egg	1.90—2.05
Nut	1.65—2.00
R O M	1.70—1.80
Slack .....	.70—1.25

tation, for the purpose, which, however, must not be local but truly national.

It is now urged that this power be employed, directly or through Federal aid, to the states, for new forms of social legislation such as old age, sickness or unemployment insurance, in forms utterly destructive of local government for the states, completely impairing the immunities we have traditionally attached to the citizen. Modern civilization is a conflict between individualism and socialism. Our own, more successfully than any other, has limited extreme individualism in the social interest and steadily attains the more beneficial purposes sought by socialism without yielding to its form, or denying the dignity and worth of the individual, or failing to recognize him as the dynamo of progress.

Thus, according to high authority, \$2,500,000,000 annually of private wealth is devoted to voluntary benefactions to support our colleges, universities, churches, organizations of research, museums of art, all the liberal sciences, and every form of helpful philanthropic effort. These may be described as the fruits of voluntary as distinguished from compulsory state socialism. Now it is suggested that the great central authority may be employed through the power of taxation to seize and compel the distribution of such portions of private income as Congress believes essential to the execution of a complete program of social insurance. It is not only a distinct movement in the direction of confiscation destructive of individual and corporate saving, but it would ultimate in political domination, control and guidance of the cultural life of the nation itself.

Hearings were held in Baltimore and Washington the latter part of January before examiners of the Interstate Commerce Commission on the petition of retail dealers in those cities for a reduction in rates on anthracite from Pennsylvania fields. Complainants contend that the routes now used by the carriers are not the shortest possible routes that could be used. The carriers say that while the routes proposed are "shorter possible routes," they are not necessarily "shorter practical routes."

The Effects of *Competition* upon Coal Mining

By G. B. Southward

THE COAL INDUSTRY is trying to put its affairs in order. Everyone engaged in coal mining knows the reasons for the present situation and knows that corrective measures are theoretically possible. The practical application of the theory is not proving easy. It has been said that coal needs a "Moses" to lead it out of the wilderness. There are a number of men in the coal industry who have the vision and the knowledge required for this leadership—the difficulty is to secure the following. Without the Children of Israel behind him and agreeing to be lead, "Moses" would not have gone very far.

On one thing coal men are all united—that the competition which has grown up is the principal cause of our troubles. The old proverb, "Competition is the Life of Trade," has no advocates in coal mining. But before we can take steps to eliminate competition or at least to reduce it to a reasonable basis we must agree on what we are competing against, how much this competition is costing, and how it can be met.

THERE IS ONE source of competition within the industry that has been over-estimated. The "snow-bird" and the small mine are cited as obstacles which have to be removed before any plan to produce profits can be put into effect. Even if this idea were sound it would be a very difficult matter to put it into effect. But to say that this group of mines is the factor which prevents profits in coal mining and that nothing can be done until their competition is eliminated is giving them an importance which they do not deserve. Suppose that we consider the following figures which are based on compilations made by the United States Bureau of Mines:

In 1930 the bituminous industry operated 5,891 mines to produce 467,526,000 tons. These mines can be divided into three classes—Class A which includes the medium and large capacity mines with outputs above 50,000 tons per year; Class B includes small mines with outputs from 10,000 to 50,000 tons; and Class C or "snow-birds" with outputs of less than 10,000 tons annually. In 1930

there were 2,684 Class C mines operating. These mines produced only 1.7 percent of the total United States tonnage and the Class B or small mines numbered 1,239 and produced 6.7 percent. This leaves a remainder of only 1,968 medium or large producers in Class A and they mined 91.6 percent of the total U. S. tonnage.

The above figures are for a low production year of 1930. In 1926, a peak year, there were 7,177 mines operating to produce 573,000,000 tons. There were 2,730 "snow-birds" who produced only 1.8 percent of the total output. The small mines in Class B numbered 1,912 and produced 9.4 percent of the total. The medium and large mines in Class A numbered 2,535 and produced 88.2 percent of all the coal mined. So there was not much difference in the status of the small mines in high and low production periods.

In some states west of the Mississippi there are a number of districts where the output is low and the mines are small. Eliminate these and consider the coal fields east of the Mississippi which mined 90 percent of the U. S. tonnage in 1930. In this section the Class C mines produced 1.3 percent of the total; the small mines of Class B produced 5.3 percent, while the remaining Class A mines number only 1,735 and produced 93.4 percent of the total tonnage from that section of the country.

THESE CLASS A mines are the real coal industry and their fate is in their own hands. Their actions and policies should not be controlled by the "snow-birds" and small mines who together produce only 8.4 percent of the total output. Moreover it is rather difficult to eliminate this class when they produce coal at an equal or lower cost than large operations. And as long as hand methods continue to be used they always will.

COAL has competition both from within and from without the industry. Of these two it is a question as to which has caused the most harm. The competition from within—between mines,

districts and states—has lowered prices. The competition from without from oil and gas has lowered production. Before coal mining will become profitable the internal competition will have to be eliminated and the external competition will have to be met.

There are two ways to eliminate competition from within—the first is to put the opponent out of business and the second is to stop competing by mutual agreement. Thus far coal has tried to use the first method, but since all contestants seem fairly well matched, this has not succeeded. It is now time to try the second method. This is largely a matter of coordinating sales and distribution. It is also time to regain the markets lost to oil and gas. This is largely an operating problem to put the production costs of coal on a profitable competitive basis with the other fuels. Today, coal is competing in price with oil and gas, but there is no profit in it.

THE MOVEMENTS which are now under way to consolidate selling efforts and to stabilize the price of coal are decidedly constructive, but these movements require the consent of a large number of mines and it may be some time before these various units can be brought to an agreement. In the meantime a number of companies have decided not to wait until this can be brought about and are going ahead with their own plans to improve their operating methods so that they can compete with other fuels and make a profit.

When we think of what coal has to do to meet the competition of oil and gas there is only one answer—machine methods. A miner with a pick and shovel loading 10 tons per shift cannot successfully compete against a well drilling machine. A mechanical loader producing 300 tons per shift can compete. But complete mechanization is only used by comparatively few coal companies, so that the effect of what they are doing is not yet felt by the coal industry as a whole. And these companies have not set out to reform the industry. Their efforts are for themselves. But without concerning themselves over any question of leadership their methods are nevertheless showing the way in which outside competition can and is being met successfully.

Form 5 (Continued)

	Number	Year removed	Cause of removal
Timbers removed	1	1975	decayed
"	2	1975	decayed
"	3	1975	decayed
"	4	1975	decayed
"	5	1975	decayed
"	6	1975	decayed
"	7	1975	decayed
"	8	1975	decayed
"	9	1975	decayed
"	10	1975	decayed
"	11	1975	decayed
"	12	1975	decayed
"	13	1975	decayed
"	14	1975	decayed
"	15	1975	decayed
"	16	1975	decayed
"	17	1975	decayed
"	18	1975	decayed
"	19	1975	decayed
"	20	1975	decayed

1. Indicate number removed account of decay, splitting, crushing, or combinations of these defects, and other causes.

Condition of timbers still in service:

Number in good condition (No visible deterioration) 2

Number in fair condition (All stages of deterioration not included in "Poor" classification, due to decay, splitting, crushing, etc.) 1

Number in poor condition (Still serviceable but seriously deteriorated due to decay, splitting, crushing, Estimated serviceable life not more than two or three years) 6

Number in unserviceable condition (Unserviceable due to decay, splitting, crushing, etc., and should be removed) 2

Remarks:

PRACTICAL OPERATING MEN'S DEPARTMENT COAL

Practical Operating Problems of the
Coal Mining Industry

NEWELL G. ALFORD, Editor

The *why* and *how* of Mine Timber Records

By R. M. Wirka*

TIMBER is essential to most mining operations. More than 285,000,000[†] cu. ft. of timber was consumed underground in 1923 in the mines of the United States. With a material that is used in such large quantities it would seem natural to suppose that all mining companies have accumulated information that enables them to purchase the timber most suitable for their needs and to use it most economically. As a matter of fact, however, the timber policy of many mining organizations is not based on accurate information and the annual charge for timbering is often far in excess of that really necessary.

Factors Affecting Timbering Costs

SOME OF THE important factors affecting timbering charges are availability and cost of the timber, cost of installation, serviceable life of timbers, and the use of preservative treatment. Information on the availability and cost in place is usually accumulated by operators through analyses of operating costs, market conditions, and surveys. Information on the life of untreated timbers or the value of a preservative treatment is seldom collected although service tests on mine timbers and adequate records would yield information from which substantial operating economies could in all probability be effected.

A number of years ago a large coal mining company began some service tests on mine timbers to determine whether or not it would be economical to use

treated timbers in its permanent workings. Untreated timbers were giving an average life of less than 1½ years at the time the tests were begun. The economy of using treated timbers was so clearly demonstrated during the first few years of the study that the company erected a pressure treating plant and has been treating timbers for its permanent workings ever since.

Another mining company is now using untreated timbers of a naturally durable species for its permanent workings. Such timbers are expensive. Officials of the company believe that this practice offers them the best economy although they have no data to substantiate their belief. Service tests would tell them whether their policy is the most economical, or whether other species, less durable but also less expensive, or treated timbers would be more economical.

Mining companies do not always have to conduct mine timber service tests before they can reduce timbering costs. Much can be accomplished on the basis of information now available. To delay making any improvement through the period of years required to complete service tests would obviously be poor judgment. However, after making such improvements as may be possible on the basis of the experience of others, each operation has problems peculiar to itself that when solved through the medium of service tests should permit even greater savings. Those responsible for the timber policy, just like those responsible for other phases of a mine operation, must be alert at all times for possible improvements and not make the mistake of feeling that a policy once decided upon requires no further thought.

Information from Service Tests

SOME SPECIFIC questions of value in developing a timber policy that can be answered from mine timber service tests are:

(a) What is the life of different species of untreated timber when used in the various parts of the mine under consideration.

(b) Does peeling untreated timbers pay?

(c) Besides other advantages will improving the air conditions in a mine increase the life of timber enough to pay for part or all of the cost of the improvement?

(d) What percentage of timber in permanent working is removed on account of crushing and squeezing rather than decay?

(e) What increase in life can be expected from timbers given a treatment with a chemical preservative and what is the economy of this practice when used in permanent workings under prevailing local conditions?

(f) What chemical preservatives are most effective under local conditions and what quantities are needed to give the timbers the necessary protection?

(g) Do the timbers in some temporary workings rot out before the area is closed? (If so, an inexpensive treatment might give the necessary additional life at a considerable saving or it might be economical to use thoroughly treated timbers which could be reclaimed and used elsewhere.)

Care in Conducting Tests

ALTHOUGH ACCUMULATING information on the life of mine timbers does not require additional personnel nor

* Maintained at Madison, Wis., in cooperation with the University of Wisconsin.
† Department of Commerce, Bureau of the Census—Forest Products, 1923. Mine Timber Used Underground.

much expense, nevertheless mine timber service tests must be carefully planned and conducted if the results obtainable from them are to be reliable and of value. Unfortunately, only a small number of complete and accurate records of mine timber service tests have been accumulated to date by operators. To be sure, many records have been taken that purport to show the life of mine timbers but an analysis of the records usually reveals one or more of the vital facts to be lacking. Among the vital facts so often treated in this manner are the species of timber used, the exact date of setting, the total number of timbers originally set, date and cause of removal of timbers, or in the case of treated timbers, the preservative used and details of treatment. It is not enough to plan comparative tests and install the experimental timbers in the mine. All the effort and expense invested in the experiments may be wasted, or what is worse, incorrect conclusions may be drawn unless accurate and adequate records are kept from the beginning to the end of the experiment.

If it is desired to study the effectiveness of preservatives or treating processes, detailed records should be kept on each timber in order to provide answers to the various questions on the treatment of the timbers that are almost certain to arise in the future. Such records should include the size and character of the timber, species, condition of the timber before treatment, details about the preservative used, treating conditions and amount of preservative absorbed. Form 1 is an example of a form that is suitable for recording treating data on a hot and cold bath treatment. A form of this general type, with necessary variations, should prove suitable for recording the treating data for any process that may be used. For example, if the timbers were treated by a pressure process, the form under "record of treatment" should be changed to describe in detail such treating conditions as temperature of the preservative, amounts and duration of pressure, degree and length of initial and final vacuums, if any were used, and so forth. If untreated timbers are studied a record should be kept of their size, proportion of sapwood, and their condition at the time of installation. The proportion of sapwood is especially important in untreated timbers for sapwood in all our native species has low resistance to decay and such resistance as the wood possesses rests in its heartwood.

Marking Timbers

EACH TIMBER should be marked, preferably with a number or letter, or both, so that it may be readily identified when in service in the mine. Timbers

to be treated should be marked before treatment. Too much emphasis can not be placed on proper marking. Frequently it has been necessary to eliminate experimental timbers in service from further consideration because the markings became obliterated and identification thereby lost. A hot branding iron is very useful for lettering or numbering timbers. In addition, it is desirable to attach tags of durable metals bearing the identification marks. For caps it is well to brand and attach metal tags near each end of the timber on the surface that will be down when the timber is in place. Posts should be branded in two places a foot or so apart near the end that will be up when the post is installed, with a metal tag between the two brands. The identifying mark on ties and other types of timbers should be so placed that they may be conveniently read when the timbers are in place.

In making comparisons between woods or treatments it is necessary that the service conditions be the same or the comparisons will not be fair. If several species untreated or treated with a number of preservatives applied by different processes or other variables are to be studied, timbers of each class should be placed in each location selected in the mine for the test so that each variable may be studied under the same conditions of service. Unless this is done erroneous conclusions may be drawn from the results. For example, timbers treated with one preservative may be placed in a location in which the humidity, temperature, or air circulation are more favorable to decay than those in another location in which timbers of another treatment are set and differences in serviceability of the two classes of timbers may be observed that are due not to differences in the effectiveness of the treatment but rather to differences in service conditions. Similarly incorrect conclusions could be drawn from sets of untreated timbers of different species when not set under the same service conditions. The above is not intended to discourage the practice of selecting several locations in a mine for service tests. On the contrary, it is highly desirable to expose timbers to different service conditions, but at each location, timbers including each of the variables under consideration should be exposed. When treated timbers are being studied, untreated timbers of the same species should be set at each location along with the treated timbers for comparison with them.

A detailed record should be made of the location of timbers in the mine. A map drawn to scale is of much value in this connection. Not only does it facilitate locating the groups of timbers for inspections but should the identification

marks be obliterated for some reason or other from a timber or set of timbers it may be possible to identify and renumber them from their position in relation to other timbers as shown on the map.

Inspection of Timbers

TIMBERS should be examined frequently enough to provide a complete and continuous history of their service. The inspections should be made in detail at least once a year and observations should be made every 3 to 6 months to see that the marks are legible and none of the timbers have been destroyed or removed without proper record. Care should be exercised in making the detailed inspections. Not only should decay be reported if present, but splitting, crushing, mechanical damage, and, in the case of treated timbers, framing should be noted since these factors may be wholly or partly responsible for the subsequent deterioration of the timbers. Framing or cutting of treated timbers should be looked for not only at the time they are set but during their entire life because frequently they are cut into when timbers are set adjacent to them, on account of erecting loading platforms, and the like. Very often, where infrequent inspections are made, timbers are removed with no record of the exact date or cause of removal being obtainable. This information is highly desirable. An indefinite date of removal precludes the possibility of calculating the accurate average life of a group of timbers. Lack of information on the exact cause of removal often leads to erroneous conclusions. For example, it may be necessary to remove some treated timbers because they are badly crushed, although they show no other deterioration. If it is not known that the timber was removed on account of crushing it may be charged to decay, resulting in incorrect conclusions regarding the effectiveness of the treatment. It is essential that a competent man be assigned to make the inspections and report on the progress of the test. Usually a member of the engineering or operating departments is best able to handle this work.

Form 2 has been found satisfactory by the Forest Service for recording the condition of timbers used in mines. The sheets, which are about 4 by 8 in. in size, are bound on one end between two stiff covers. One sheet can be used per timber or set of timbers, permitting the recording of a number of inspections on the same sheet.

A form like that shown in Form 3 is useful for recording and summarizing the condition of the timbers at each inspection. Besides that it gives information on their treatment and location so that all information is readily available

in one place. The other side of Form 3 may be used for recording additional inspection data.

The recording of inspection data can be facilitated by using the following symbols, where they apply, to describe the condition of the timbers. If the condition of a timber is such that one or a combination of symbols will properly describe it, more complete notations should be made.

- G.—Good condition, showing no deterioration.
- S.D.—Slight decay.
- P.D.—Partly decayed, more pronounced decay than S.D. Still serviceable for a considerable period.
- B.D.—So badly decayed as to warrant early removal.
- S.S.—Slight splitting.
- P.S.—More pronounced splitting than S.S.
- B.S.—Badly split.
- S.C.—Slight crushing.
- P.C.—More pronounced crushing than S.C.
- B.C.—Badly crushed.
- R.—Remove (the cause and date of removal should be noted).
- M.—Missing. To be used when a timber is not found and its disposition is unknown.

Frequently experimental timbers are given greater care by the timber foreman than the regular timbers in service. Often an experimental timber is so badly decayed or crushed that it should be replaced, but because the timber foreman has probably been told of its importance or has observed much interest being shown in it by mine officials he is apt to leave it in longer than he should. This practice may lead to incorrect conclusions. Experimental timbers should be given the same maintenance as other timbers if the results obtained from them are to be of value to a mine operator.

A form similar to that of Form 4 can be used when it is desired to record the service conditions in locations where experimental timbers are set. The data sheet shown in Form 5 should prove suitable for reporting service records to organizations or committees interested in this subject, such as the Mine Timber Service Records Committee of the American Mining Congress.

In conclusion, it is well to repeat that many mining companies could effect substantial savings in timbering costs by a careful consideration of information already available and from the data that can be secured from the accurate observation of what happens to their timber in service.

Mine Timber Service Records

By REAMY JOYCE, Joyce Watkins Company, National Chairman, Mine Timber Section, National Standardization Division, The American Mining Congress.

AN EMINENT American Engineer, in making the opening address at a conference called in Washington recently where some intricate economic problems were to be discussed, laid down the procedure to be followed in arriving at the solution of the problem. The plan consisted of the following steps:

- 1.—Determine the Facts.
- 2.—Arrange the Facts in Proper Perspective.
- 3.—By a process of Inexorable Logic Deduct from the Facts the Optimum Conclusion.

THE MINING INDUSTRY has been using this method for years in solving steam, water, electric, mechanical and mineral problems. The increased efficiency and improved production methods, with resulting lower costs, bear witness to the thoroughness with which the job has been done. Only in the use of timber has the Mining Industry shown a lack of interest that is entirely out of proportion to the tremendous quantity of timber annually consumed—estimated by the United States Bureau of Mines in excess of 200,000,000 cubic feet.

RELATIVELY LITTLE is definitely known of the value of various species, sizes, shapes, or the preservative treatment of timber for permanent work from the viewpoint of the serviceability in years of life. Definite records have been kept only in isolated cases and the Industry as a whole, has very few facts that can be arranged in proper order so that the cost in place and the service life can be translated into costs per ton of material mined.

IN ARRANGING the work of the Mine Timber Committee, the co-relating members of the American Standards Association, have included a Mine Timber Service Records Sub-Committee as an important division of work.

THE EXCELLENT outline of this project as presented by R. M. Wirka of the Forest Products Laboratory, indicates methods that will develop authentic timber life facts which, when available in sufficient quantity, will form the basis for the more intelligent use of timber.

IT IS HOPED that the industry will include the compilation of mine timber records as an essential part of the duties of operation. It is only when the facts are available that practices and methods of use, can be viewed with confidence.

THE MINING INDUSTRY has many problems and is alert as never before in studying its present and future position. The mine timber problem is the last of the important elements of costs to be dissected and analyzed.

THE MINING INDUSTRY has available, a wealth of information concerning the properties of steel, brick and concrete as construction materials in mining operations, but a dearth of information regarding the properties of timber for this purpose; yet of all construction materials, wood has the greatest strength for its weight; is available in large quantities at a low initial cost and can be sized readily to meet any condition of service.

UNDER THE ABLE leadership of the timber engineers of the Forest Products Laboratory, a simple workable plan has been made available. Now is the time for action.

PRACTICAL OPERATING MEN'S DEPARTMENT METALS

Practical Operating Problems
of the Metal Mining Industry
GUY N. BJORGE, Editor

Safety cut-outs for trolley wires at underground chutes

By R. I. C. Manning² and J. J. Forbes³

UNDERGROUND ELECTRICAL wiring embodies an ever-present hazard; this is especially true of trolley wires which have to be bare and necessarily carry fairly high voltages.

Because electrical haulage is held to be the most efficient type of transportation so far devised for underground purposes it has been adopted by most of the large mines throughout the United States. The installation and proper guarding of the electric wires to make them safe and

efficient is a problem that continually confronts mine officials.

Many states have passed laws regarding the installation of wires and some have passed laws which require their guarding at points where men or animals frequently pass under them, but at present no state requires that the trolley wire be adequately guarded throughout its entire length. Arizona has a law which requires that trolley wires be installed at least 7 ft. above the top of the rail (paragraph 2296, page 718, Mining Code of State of Arizona, 1928), but no provision has been made in this code for the guarding of trolley wires.

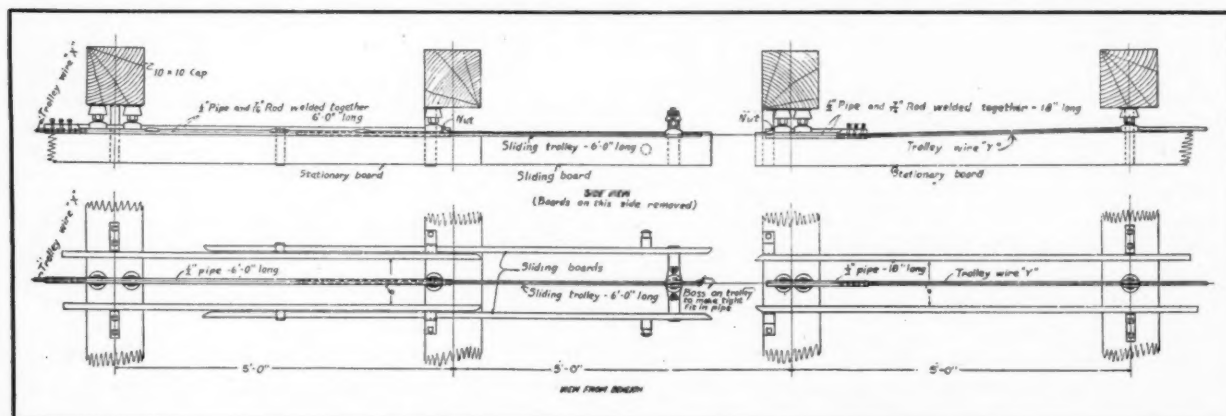
By far the greater proportion of con-

tact electrical accidents in mines today is caused by men coming in contact with trolley wires.

Many companies have made noteworthy attempts to install and guard such wires properly and many different types of trolley-wire guards are used, both for covering the wire temporarily while men are working on or near it and

¹ Published by permission of the Director, U. S. Bureau of Mines. (Not subject to copyright.)
² Associate mining engineer, U. S. Bureau of Mines, Safety Station, Phoenix, Ariz.
³ Supervising Engineer, Safety Section, U. S. Bureau of Mines, Pittsburgh Experiment Station, Pittsburgh, Pa.

Figure 1—Safety Trolley cut-out used in an Arizona mine. An insulated jumper is run around the cut-out from wire "X" to wire "Y." Small boards are hung from lag screws on 10 x 10 caps to drop down over dead ends when cut-out is open.



for guarding the wire more or less permanently. Trolley-wire guards that will insure the safety of the workmen and permit efficient use of the trolley wire are exceptional.

When any mining company is approached with the idea of adequately guarding its trolley wires throughout their entire length, which should be done at all mines, the argument is invariably presented that there are certain places where a trolley-wire guard is in the way. This is especially true in metal mines where the wire passes in front of chutes from which ore or rock is drawn daily.

Method in An Arizona Mine

One operator in Arizona, recognizing the necessity for guarding all bare wires if maximum safety is to be attained with reasonable efficiency, has guarded the trolley wire throughout the entire underground workings. When this wire was guarded the engineers were confronted with the problem of arranging the guards in such a manner as to give the least interference at loading chutes. After considerable experimentation a guard has been adopted consisting of two boards hung parallel to the trolley wire on sliding brackets and between these boards a section of trolley wire 6 ft. long is firmly fastened. Both the guards and the wire are of the same length and slide along brackets. At each end of the stationary trolley wire is fastened a length of copper pipe of such diameter as to per-

mit the movable section of trolley wire to slide freely into it with a minimum of friction. One of these pieces of pipe is approximately 2 ft. long and the other 6 ft. long. The reason for having one of the pieces 6 ft. long is to permit the sliding of the movable section of trolley into the pipe. (See figure 1.)

This guard has been in use for several years and has proved to be economical and safe. Similar guards are installed in front of every chute and at other points in the mine where it is necessary to remove the guards to permit efficient work.

At points in any mine where it is found to be inconvenient to cut off the current in the wires beyond the guard gap, caused when the guard is open, insulated wires can be installed around this gap to permit an uninterrupted passage of current when the guard is open. The attached diagram gives details of the construction and installation of this type of guard; it also shows the type of stationary guard used throughout the mine. The customary stationary guard in this mine consists of two boards 1 by 4 in. installed parallel to the trolley wire on either side and 6 in. apart. This gives a clearance of 3 in. between the wire and the board on each side of the wire.

Methods in Michigan Mines

One metal mining company in Michigan is using an efficient guard in its mine. In heavy ground, where timbers are continually crushing, the common types of trough guards for the trolley wire are constantly breaking and getting in the way of the chute loader. Consequently, they are torn out and discarded. The guard now used can be quickly clamped over the trolley wire when starting to load the chute and removed when loading is completed. It has an advantage over the trough in that the wire is entirely covered, and the chute bar can safely come against it; also, the additional space which the slack wire gives is sometimes of advantage to the loader. Other types of guards were tried at this mine before the new one was devised. The material needed consists of 2 pieces of 2 by 4 by 36-in. pine or fir sized on 4 sides, oven dried and soaked in hot paraffin; one pair of stub hinges; and one window sash clasp. After assembling, coat with waterproof paint. In construction, the timber should be sized and a groove $\frac{5}{8}$ by $\frac{5}{16}$ in. cut in the center of each groove to fit the trolley wire snugly. After forming, dry and soak in hot paraffin, assemble, and paint. (Continued on page 28)

Types of trolley guards used in three different Michigan mines

NOTE—In Figure 3, trolley guard clears trolley wire by at least 2" when swung to opposite side

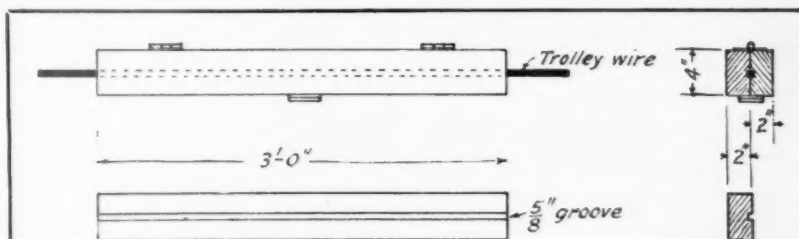


Figure 2

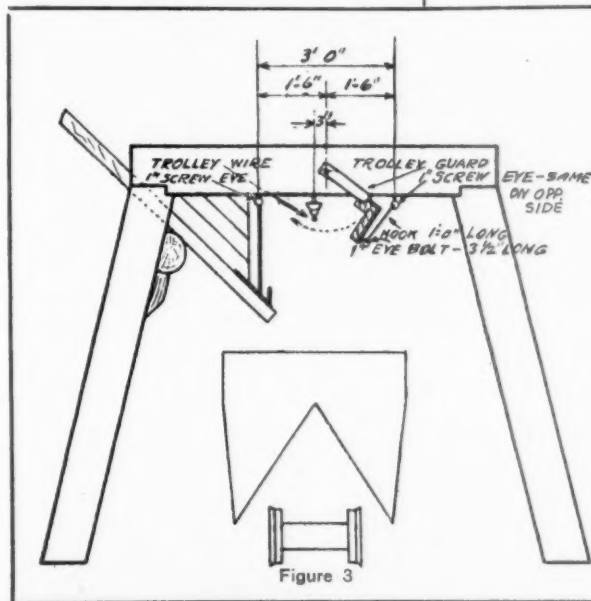


Figure 3

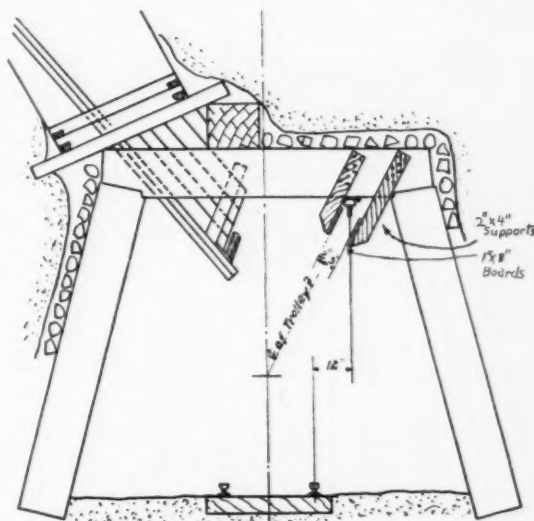


Figure 4

NEWS

of the mining field

COLORADO MINING ORGANIZATIONS MEET

The mining industry of Colorado was well represented at the annual meeting of the Colorado Mining Association and the Colorado Chapter of the American Mining Congress, held at Colorado Springs, January 14 and 15, and the renowned "sowbelly" dinner on the evening of the 15th seemed to have attracted every mining man in the state.

The convention went on record, by open discussion resolutions adopted, as opposed to the passage by Congress of the Garfield bill, designed to transfer the ownership of unreserved public lands to the states in which they are situated, without transferring title to the mineral rights. A resolution was also adopted urging that every effort be exerted to keep in operation the narrow gauge railroads serving several mining districts in the state.

The convention was opened by former Governor Jesse F. McDonald, president of the Colorado Mining Association. Reports were presented by C. Lorimer Colburn, of Denver, secretary of the Association; Edward H. Denny, of the Bureau of Mines, whose subject was "Progress of Safety in Colorado," and J. A. O. Carper, representing the directors of the Colorado Chapter.

The various speakers and their subjects included the following: "Mill Tailings Disposal Problems," R. D. Leitch; "The Leasing System of Cripple Creek," H. J. Vanderveer; "Geology of the Crip-

ple Creek District," G. F. Loughlin; "Progress of U. S. Geological Survey Cooperation," B. S. Butler; "Oil Industry and Developments," A. E. Brainerd; "Methods of Taxing Mines in Colorado," P. M. Brereton; "Federal Taxation of Mineral Properties," J. F. Callbreath; "What is Sound Money," George E. Collins.

Attorney General C. L. Ireland discussed the public lands recommendations made by the commission appointed by President Hoover, and R. W. Toll spoke on policies concerning national parks.

John T. Joyce, State Mine Commissioner, read a paper on "Colorado Mining," in which he reviewed past history and present conditions in the state. Referring to capital's timidity in mining as contrasted with days gone by, Mr. Joyce paid a tribute to some of the industry's pioneers. "Men with money today," he said, "want a million tons of ore blocked out and in sight, and then a guarantee of 20 or 30 years' production. With a mine like that, who asks for capital?"

J. F. Callbreath, secretary of the American Mining Congress, addressed the delegates on "Federal Taxation of Mineral Properties," outlining the general situation and urging the cooperation of all engaged in the industry in efforts to retain and obtain equitable measures.

More than 1,000 attended the annual dinner and entertainment which followed.

and also addressed a meeting of southern Congressmen at the Capitol. The delegation included Lieut. Gov. H. D. Merrill; former Gov. W. W. Brandon; Speaker A. M. Tunstall, of the Alabama House of Representatives; Milton H. Fies, vice president of the De Bardeleben Coal Corporation; Ben W. Roden, president of the Roden Coal Company; M. W. Bush, president, Alabama By-Products Corporation; and James L. Davidson, secretary, Alabama Mining Institute, who acted as secretary of the meeting, with Representative Allman (Dem., Ala.) presiding. The delegation pointed out that development of the project would result in a marked increase in coal and coke production and in a major industrial expansion in the South.

Deny Increase on Antimony Oxide

The Tariff Commission on January 18 denied and dismissed an application for an increase of duty on antimony oxide, antimony regulus or metal. The application was filed with the commission in November by the Texas Mining & Smelting Company, of Laredo, Tex.

A. I. M. E. to Meet This Month

Members of the American Institute of Mining and Metallurgical Engineers will gather in New York February 15 to 18 for their 141st annual meeting. The sessions will include Mining Methods, Ventilation, Milling Methods, Non-Ferrous Metallurgy, Non-Metallic Minerals, Geology, Prospecting, and Coal Classification.

A feature of the meeting will be the presentation of the Saunders medal to Frederick W. Bradley, and the James Douglas medal to C. H. Mathewson, at the annual dinner, February 17. Entertainment features include a dinner-smoker, luncheons, an informal dance and the annual reception and dinner. A special program has been prepared for the ladies.

Fluorspar Investigation Ordered

The United States Tariff Commission on January 16 ordered an investigation of the differences in costs of production of fluorspar in the United States and competing foreign countries.

New Edition Idaho Mining Laws

A new edition of the mining laws of Idaho, containing all new laws and amendments passed by the last legislature, has recently been published by Stewart Campbell, state inspector of mines. The pamphlet also includes up-to-date extracts from the United States mining laws and an appendix.

According to Mr. Campbell, the most frequent inquiries addressed to his department are questions on mining laws relative to mining locations and what will and will not count as annual labor. Some general interpretations of the law, covering state and federal statutes, decisions of the courts and rulings of the United States Land Office, constitute the appendix. Copies may be obtained upon request to the inspector's office at Boise, Idaho.

U. S. Coinage Smaller

Director of the Mint Robert J. Grant in his annual report for the year ended June 30, 1931, states that domestic coinage was the smallest in value and number of pieces for many years. The total number of domestic pieces of money executed by the mints was 98,236,500 valued at \$6,615,110, as compared with 399,467,200 pieces valued at \$16,278,180 for the previous year. Gold coins valued at \$4,570,000, subsidiary coinage valued at \$795,300, 5-cent pieces valued at \$408,000, and 84,181,000 bronze 1-cent pieces were coined. Gold acquired by the Government at mints was valued at \$210,791,181 while 2,193,313 ounces of silver at an average cost of 32.61 cents per ounce were purchased.

Eagle-Picher Soon To Build Largest Tri-State Mill

Construction work will begin shortly on a new 3,600-ton central milling plant for the Eagle-Picher Mining & Smelting Company on the Southside property of the company in the south end of the Picher, Okla., field. The work of laying some 8,000 ft. of railroad track at the site has already begun. The mill will have a large surface hopper, of concrete, and an underground crushing plant. When completed it will be the largest in the Tri-State field.

Alabama Urges Shoals Lease

Officials of Alabama and representatives of its industrial interests were in Washington early in January in support of Congress carrying out the recommendations for private operation of the Muscle Shoals, Ala., nitrate and power project as recommended by a commission representing the Government and the States of Alabama and Tennessee. The delegation called on the President at the White House and the Secretary of War,

Personals—

R. V. CLAY has been appointed vice president and general manager of the Hanna Coal Company and the Jefferson Coal Company, with headquarters at St. Clairsville, Ohio, according to an announcement from R. L. IRELAND, JR., who drops his title of general manager but remains as vice president of these companies with headquarters in Cleveland, as before.

Mr. and Mrs. STANLY A. EASTON celebrated their silver wedding anniversary on December 20 with an informal reception at their home in Kellogg, Idaho. Two silver candlesticks and a silver bowl, made from silver obtained from ore from the Bunker Hill & Sullivan mine, reduced at the Bunker Hill smelter and refined at the company's refinery, were presented the couple by the Bunker Hill staff, representing the office, mine, mills and smelter. Mr. Easton is vice president and general manager of the Bunker Hill & Sullivan Company.

WADE KURTZ, of Joplin, Mo., gave a lecture on the Mayan ruins of Yucatan January 23 at a dinner-dance meeting of the Joplin-Miami section of the American Institute of Mining and Metallurgical Engineers, at Miami. Lantern slides and a two-reel motion picture, taken by Charles Blair, of Carthage, Mo., were shown. Mr. Kurtz recently made a visit to Yucatan where he made a study of the ruins.

GEORGE H. CROSBY, Duluth, Minn., mining man, has been named the 1932 member of the Duluth Hall of Fame, sponsored by the American Legion of that city. Mr. Crosby was a pioneer of both the Messabi and Cuyuna iron ranges. The village of Crosby, on the Cuyuna, was named after him, as was the Crosby mine on the Mesabi.

ROBERT E. TALLY, vice president of the United Verde Copper Company, was the guest of the Minnesota Section of the A. I. M. E. at a dinner given in Duluth on February 3, while en route to New York from the west after an inspection of his company's properties.

F. R. WADLEIGH, consulting mining engineer of Washington, D. C., has recently returned from Alaska, where he made a special investigation for the Department of the Interior of the coal situation in that territory, particularly along the Alaska railroad. He made four reports on various phases of the situation, one of which will probably be published shortly.

Mr. Wadleigh has presented to the U. S. Bureau of Mines his collection of literature and books pertaining to coal and allied subjects. This collection, said to be one of the finest and most complete of its kind, will be available for consultation through the Statistics Section of the Coal Division.

D. H. PAPE, at one time assistant to the secretary of the National Coal Association, has been elected president of the Pratt Coal Company, of Boston.

C. M. MARTIN, president of the Greenville Coal Company, was reelected president of the West Kentucky Coal Bureau at the organization's annual meeting in Louisville recently. K. U. Meguire, president of the Dawson Daylight Coal Company, was elected vice president, and C. E. Reed, of Louisville, elected secretary.

MCKINLEY W. KRIEGH has announced his resumption of the practice of law, specializing in Federal taxation, tariffs, customs, claims, and other departmental matters. Mr. Kriegh served for nine years as chief of the Tax Division of the American Mining Congress, resigning in 1930 to engage in private practice in the Pacific Northwest. Recently he completed a survey and analysis of financial and economic conditions in the lumber industry for the U. S. Timber Conservation Board.

H. A. GLOVER, general manager of sales for the Consolidation Coal Company for over 10 years, has resigned in order to devote his attention to personal business.

BROOKS FLEMING, assistant to the president of the Consolidation Coal Company, has been elected president of the Maryland Coal Aid Association, succeeding the late John S. Brophy. The organization was recently created to promote the sale of coal mined in Maryland.

GEORGE H. DEIKE, president of the Mine Safety Appliances Company, Pittsburgh, Pa., has been elected commander of Major William H. Davis Camp No. 98, United Spanish War Veterans, Allegheny County. Mr. Deike is a trustee of the Pennsylvania State College, a member of the Chemical Warfare Procurement Board for the Pittsburgh district, and a director of the Potter Title and Trust Company of the same city.

COAL SALES AGENCY PLAN TO BE TESTED IN COURT

The proposed regional sales agency plan for the coal industry, as developed by a committee of operators under the sponsorship of the National Coal Association, is to be submitted to the Supreme Court of the United States in a test case for a decision as to its legality. According to plans announced the latter part of January, the suit will be directed against "Appalachian Coal, Inc.," the sales agency organized at a meeting in Cincinnati December 30, representing the territory embracing the Southern high volatile fields—West Virginia, Virginia, Kentucky and Tennessee. It is estimated that over 20 percent of the commercial tonnage in these states, or

Obituary—

MORRIS W. BUSH, president of the Alabama By-Products Corporation, Birmingham, died at his home, January 24, from a heart attack, following an illness of but a few days. Mr. Bush was born in Mobile, January 28, 1880. He graduated from Vanderbilt University in 1899 and for a few years was connected with the Alabama Consolidated Coal & Iron Company. He was appointed general superintendent of Woodward Iron Company in 1907 and seven years later was elected president of the Shelby Iron Company, Coosa Pipe & Foundry Company and the Imperial Coal & Coke Company. In 1916 he was also elected head of the Majestic Coal Company. Two years later these companies merged with the Birmingham Coke & By-Products Corporation, and in 1920 the name of the corporation was changed to the Alabama By-Products Corporation.

ROBERT P. MALONEY, general manager of the Dominion Coal & Steel Company, Sydney, Nova Scotia, died suddenly January 31, following a heart attack suffered two days before. Mr. Maloney was formerly vice president of the Davis Coal & Coke Company, Thomas, W. Va., and prior to that time had been in the coal business at Punxsutawney, Pa., where services and burial were held.

BERT W. CHADWICK, of Joplin, Mo., superintendent of the Ramage Mining Company mine at Picher, Okla., died suddenly at the mine January 12. Death was due to cerebral hemorrhage. Mr. Chadwick became superintendent of the Ramage, formerly one of the larger producers of the Picher field, in 1917. He was 52 years old.

about 32,000,000 tons, has already agreed in writing to participate in the plan, and reports have been received from an additional 27 percent indicating that the producing companies in question will follow suit.

Operators who have endorsed the sales plan are optimistic over the outcome of the test suit which is to be filed because of the fact that it has received affirmative opinions from leading attorneys in various sections of the country. Among these is William J. Donovan, of New York, who was assistant attorney general during the Coolidge administration, and who will head the counsel in support of the proposal.

It Was a Skullgard

An account on page 43 of our January number, portraying the effectiveness of a miner's protective hat when a fall of roof occurred, inadvertently applied the term "hard-boiled" to the type of helmet involved, when actually it was "Skullgard," manufactured by the Mine Safety Appliances Company. The term which we used in the story is the trade-name of another make of head-gear, and we take this opportunity to correct this inaccuracy.

Claims to Utah Coal Lands Before Supreme Court

The claim of the United States to over 5,000 acres of coal land in Utah, once a part of the public domain, was argued before the U. S. Supreme Court January 19 and 20. The State of Utah, Carbon County Land Company and the Independent Coal & Coke Company are seeking a review of the decision of the Circuit Court of Appeals which held that the state did not have title to the coal

CINCINNATI PROGRAM NEARS COMPLETION



GEORGE C. MCFADDEN
Chairman, Program Committee

A FINAL meeting of the committee in charge will shortly put the finishing touches on the program for the 9th Annual American Mining Congress Coal Convention and Exposition, to be held at Cincinnati the week of May 2.

Under the direction of George C. McFadden, assistant vice president of the Peabody Coal Company, district meetings of the program committee have chosen topics for consideration, and with the aid of these there has emerged a schedule of sessions that will be truly representative of all phases of coal production. Nine separate sessions are planned, including one to be devoted to the anthracite industry and one to the position of coal in the industrial life of the country. Others will deal with economics of practical mine operation, covering problems of administration; economies to be derived through mechanization; costs and maintenance with mechanical mining; accident prevention as an economy measure, and realization to the industry through cleaning its product.

The district chairmen include:

H. H. TAYLOR, JR., *Franklin County Coal Corp., Ill.-Ind. District.*
L. N. THOMAS, *Carbon Fuel Company, Sou. W. Va. District.*
G. E. SMITH, *Wise Coal & Coke Co., Va.-Ky.-Tenn. District.*
J. A. LONG, *Woodward Iron Company, Southern District.*
K. A. SPENCER, *Pitts'g & Midway Coal & Mining Co., West Cent. Dist.*
OTTO HERRES, *United States Fuel Company, Far West District.*

lands in Carbon County which the state had attempted to sell to the land company for \$556,000.

The basis of the Government's contention, the Court was told, is that the parties to whom the land was sold by the state had falsely stated in their applications that the land was non-mineral in character, whereas it held a valuable coal deposit. Counsel for the land company pointed out that the company could have purchased the land from the Federal Government as coal land for \$10 to \$20 an acre when it made its first contract for the land with the State of Utah. In its last contract, it agreed to pay \$100 an acre.

"The Government in 1907 only brought its action to prevent the state being defrauded," counsel for the company declared. "Now when the state makes a profitable deal and in keeping with the Government's original announced purpose, it seeks to prevent the state from receiving the benefits of a transaction which means that the state would receive approximately \$1,250,000 for its public institutions."

Lake Cargo Coal Rates Allowed to Stand

Another chapter in the famous Lake Cargo Coal Rate Case was brought to a close January 21 when the Interstate Commerce Commission refused to disturb the present differentials between the northern and southern fields on coal to Lake Erie ports for transshipment, and dismissed the petition of operators in western Pennsylvania and Ohio for a return to the 45-cent differential by a 10-cent a ton increase.

In this decision, the fifth in this litigation, the commission held that the present rate structure was not prejudicial or preferential, supporting the findings of

the examiner in the case. In effect, the decision reaffirms the commission's contention that mileage alone should not be the determining factor in fixing rate differentials.

"In the exercise of their managerial discretion and under the stress of competition, carriers often establish rates and rate relationships which we could not require them to establish," the decision said. "When such rates appear as a whole to be in the public interest, they should not be condemned merely because they are not based on the same distance scale of maximum reasonable rates."

Commissioners Eastman and McNamany dissented from the majority opinion, both on the ground that the higher ton-mile rates on coal from the northern fields, as compared with competing shipments from the southern mines, placed the Pittsburgh and Ohio producers at an unfair advantage in competing for the lake business.

SAFETY CUT-OUTS FOR TROLLEY WIRES

(From page 25)

guard at chutes in its mines. The guard consists of one piece of 2 by 10-in. plank of such length as to extend far enough beyond the ends of the chute to be guarded so that there will be no danger to the man punching the chute. To this is fastened a piece of 2 by 4-in. timber along one edge, forming a trough 4 by 8 in. inside dimensions. This trough is fastened to the caps which are at either side of the chute by means of heavy hinges made from 2½

by ½-in. iron. A hook is fastened to the bottom of the trough so that the device can be slung over to cover the trolley wire completely while the chute is being pulled, and can be slung back and hooked out of the way after loading is finished. This is one of the simplest and most efficient trolley guards where the trolley wire is guarded only at the chute, as in most of the mines in this district, but it is open to the faults of all guards which are not automatic in operation—that is, it can not do its work unless the man loading the cars switches it into place, and the company has found that there has been some difficulty in getting the men to use the guard continually. (See Figure 3.)

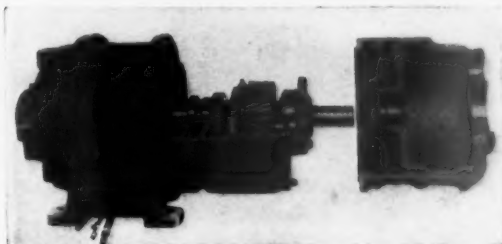
The inclined trough guard for trolley wires is a modification of the board trough which is generally used in most mining districts. It is practicable when the larger number of the chutes are on one side of the drift and are especially applicable to the ore bins and grizzlies where trains are dumped. It consists of two 1 by 8-in. boards fastened to 2 by 4-in. brackets which are nailed to the caps on an incline so that the lower end of the lower board projects beyond the vertical line from the trolley wire. At one mine in Michigan the trolley wire is offset 12 in. outside the rail. This arrangement of the trolley wire gives more space in loading from the chute as well as makes it nearly impossible for the loader himself to come in contact with the trolley wire or to touch it with his punching bar. (See Figure 4.)

(See Figure 2.)

Another Michigan company uses a swinging trolley

With the MANUFACTURERS

Unit-Built Motors and Speed Reducers



An extremely simple, compact and efficient arrangement for powering various motor-driven equipment which operates at reduced motor speeds is afforded by new unit drives now available from the Westinghouse Electric and Manufacturing Company, Nuttall Works, Pittsburgh, Pa.

These new drives, which are known as Gearmotors, consist of speed reducers combined with motors forming self-contained units only a few inches longer overall than motors alone. Advantages afforded by this combination include economy in space, simplified installation, reduced number of drive parts, high efficiency of operation, and low maintenance requirements.

Each unit includes a Westinghouse type CS general purpose induction motor and a double reduction, non-planetary type helical gear speed reducer built onto the one-piece motor frame forming

a sturdy and rigid assembly which is supported entirely by the motor feet.

An outstanding improvement in motor construction is the pre-wound primary core which is separable from the stator frame. This feature makes possible economies in motor operation and maintenance, and in repair parts stocks. It also permits quick and inexpensive change

of motor speed, voltage and phase.

The simple speed-reducing mechanism is fully enclosed in a two-piece housing which is rigidly bolted to the motor frame.

The desired reduction of motor speed is obtained smoothly and quietly by helical gears and pinions, the teeth of which are cut to a high degree of accuracy by the hobbing process.

Accessibility to Gearmotor parts is readily obtained by removing the top section of the housing without removing the drive from its mounting or uncoupling it from the driven equipment.

Garmotors are built in sizes of $\frac{1}{2}$ to 15 hp., with a wide selection of output ranging from 69 to 1,550 r. p. m. A change in the output of any unit speed can readily be made at a small percentage of its initial cost.

New C-P Permissible Coal Drill



Chicago Pneumatic Tool Company, New York, have announced new permis-

sible coal drill, known as the No. 574. The entire unit weighs approximately 180 pounds with a drilling speed of from 28 to 35 in. per minute, depending upon the motor used. It is furnished for 250 or 500 volt d. c., or 220 or 440 volt a. c., three-phase.

The drill has a post mechanism which permits easy set up and operation. It consists of a notched post and a ratchet on a turntable with a ratchet dog to engage the notches, permitting the drill to be lifted to the desired height.

The reversible flat type switch has a fuse block mounted over it which is made accessible by unscrewing a circular cover. This cover can not be removed until the switch is "off," and after the cover is removed the switch can not be returned to the "on" position. When the cover is off the fuses and their terminals are "dead."

Housings are heat-treated aluminum alloy, combining light-weight and durability capable of withstanding internal explosion pressure of considerable magnitude.

New Edison Safety Cap Lamps

The Mine Safety Appliances Company, Pittsburgh, recently introduced two companion lamps to the Edison Model H electric safety cap lamps now so widely employed by the mining industry. The new models are known as the Edison Model J and Edison Model K miners' electric safety cap lamps, and both are officially approved by the U. S. Bureau of Mines.

The Model J lamp weighs only 63 oz., yet it furnishes 26 candlepower illumination. The battery dimensions are 7 $\frac{1}{4}$ in. by 3 $\frac{1}{4}$ in. by 1 $\frac{1}{2}$ in. It is the lightest weight mine lamp battery, of its kind, available today.



Edison Model J Mine Lamp Battery and Magnet for Locking

The Model K lamp develops a maximum of 55 candlepower and surpasses by far, in volume of illumination, any portable safety lamp ever offered to the coal and metal mining industry. This lamp introduces a new departure in design in that the battery employs three cells instead of the usual two.

Both models are equipped with lightweight bakelite headpieces and double-filament highly efficient gas-filled bulbs. Both employ Edison nickel-iron alkaline batteries, which are magnetically locked to prevent tampering.

Henry H. Timken, Jr., has been made assistant to the president of the Timken Steel and Tube Company, Canton, Ohio, it was announced by Fred J. Griffiths, president of the company. He has been serving in the capacity of assistant works manager of the Timken Roller Bearing Company for the past two years.

German Instrument Firm Now Represented in This Country

R. Fuess, Inc., New York, has recently been established at 245 West Fifty-fifth Street, New York City, as the American office of the widely known German firm of the same name, manufacturers of instruments for scientific research and industrial control for over half a century.

The company's activities include seven different departments. Three of these, of more or less direct interest to the mining industry, specialize in apparatus for (1) measuring air pressure, temperature, and humidity; (2) measuring the velocity, quantity, and pressure of gas, steam, compressed air, and water; and (3) microscopy and testing of materials.

The company also manufactures mining shaft shoring-up pressure-recording instruments.

New Self-Priming Pumps

A new series of self-priming centrifugal pumps is announced by the La Bour Company, Inc., Elkhart, Ind., in their Bulletin 37, just off the press. This new series is of the direct mounted type, and the models shown are more compact than previous La Bour pumps.

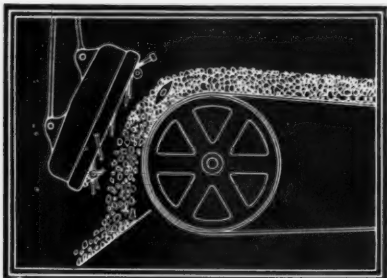
All of the operating characteristics of La Bour pumps as used in the handling of corrosive liquids are incorporated in these new models. The fact that these pumps are not intended for corrosive work has permitted several modifications

in construction, however, which has made an attractive price possible.

Included in the bulletin is a brief explanation of the principles of centrifugal pumps and the unique patented means of priming used by La Bour.

L. W. Grothaus has recently been appointed to succeed C. F. Searle as general representative of the Allis-Chalmers Manufacturing Company. Mr. Grothaus became affiliated with the Allis-Chalmers Manufacturing Company with the acquisition of the Bullock Electric Manufacturing Company, Norwood, Ohio, in 1904.

Mr. Searle resigned to accept the vice presidency of an eastern firm. He entered the service of the Allis-Chalmers Company in October, 1908.



Tramp iron may easily be converted from a menace to a salvageable asset by an E.C.&M. Separator Magnet. These magnets are easily installed, free from maintenance costs and provide the greatest power where the material is deepest. Bulletin 910 gives complete data on capacity and operation. *Write for it.*

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Gasoline Mine Locomotive Has Minimum Clearance



The Ruth Company, Denver, Colo., has introduced a new 18-in. gauge gasoline mine locomotive, designed with minimum clearances, for use in mines where good ventilation is available. Because of the narrow 18-in. gauge so universal in metal mines, and the narrow clearance of the drifts, gasoline locomotives have not found so general an application.

This new locomotive is only 31½ in. wide (13½ in. narrower than the industrial type), 4 ft. 4 in. high, with a 10-gal. radiator, whereas the industrial types are 4 ft. 8 in. high, with a 4-gal. Model A radiator; overall length 7 ft. 2 in., as compared with 9 ft. 2 in.

The side rod drives make possible the narrow width and the extremely low center of gravity. The 300 sq. in. of braking surface is applied uniformly to each of the four wheels. Gears are carried on all steel shafts and Timken bearings running in a bath of oil and totally enclosed by cast-steel gear case, which also contains the reversing mechanism which gives five speeds in either direction. This type locomotive is built exclusively for 18-in. gauge track in sizes of 2, 2½, 3, 3½, 4, and 5 tons, giving approximately 30 percent of their weight in tractive effort.

bearings running in a bath of oil and totally enclosed by cast-steel gear case, which also contains the reversing mechanism which gives five speeds in either direction. This type locomotive is built exclusively for 18-in. gauge track in sizes of 2, 2½, 3, 3½, 4, and 5 tons, giving approximately 30 percent of their weight in tractive effort.

A New "High Strength" Separator

The Dings Magnetic Separator Company, of Milwaukee, Wis., has announced a new superhigh-intensity separator that makes magnetic separations heretofore impossible.

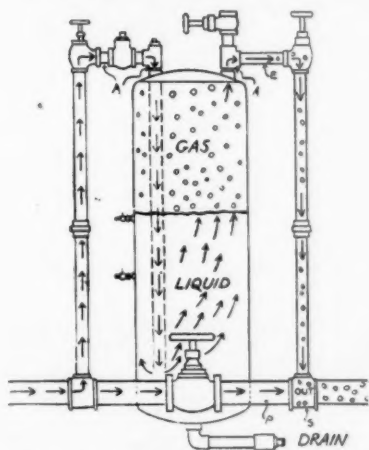
"It starts where other separators leave off and handles satisfactorily separations between such weakly magnetic materials as slate from gypsum or coal," an announcement states. "It has been demonstrated successfully on silica sand, feldspar, coal, gypsum, and other materials where they have become mixed with supposedly nonmagnetic steel of abrasion. It removes biotite, muscovite, and pure oxide of iron from feldspar and silica, and it has been proven on many other combinations of materials that have always been stumbling blocks."

The machine operates on the induction principle, requires little horsepower to drive, and has a low current consumption.

William E. Umstatter has been made executive vice president of the Timken Roller Bearing Company, Canton, Ohio. Mr. Umstatter has been with the Timken organization for 13 years, during the last two years of which he has occupied the capacity of factory manager.

Tanner Tanks and Tanner Gas

Sullivan Machinery Company, Chicago, have published a bulletin (No. 100-C) describing in detail and illustrating "Tanner Tanks and Tanner Gas," an anti-freeze airline system introduced during the 1930 season and now embodying improvements which secure better control of distribution and greater air economy. Wherever pneumatic tools and equipment operate out of doors in cold weather



Tanner Tank in section as installed in air line, showing course of air and gas

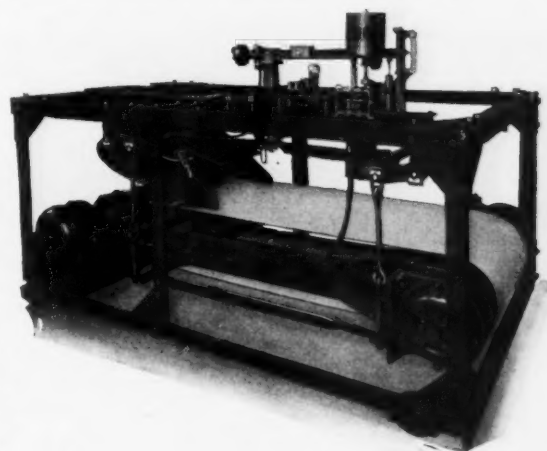
there is danger of frosted lines and clogged exhausts, slowing up operations or stopping them altogether. The Tanner gas system eliminates this hazard, even at 40 degrees below zero. Time saved, otherwise lost in thawing out lines or tools, is another consideration of prime importance. Copies of the bulletin may be had from the company, 400 North Michigan Avenue, Chicago.

New Automatic Scale Employs Photo-electric Cell

An ingenious mechanism for weighing and recording materials in transit on conveyor or feeder scales, employing the photo-electric or light-sensitive cell, has been developed by John Chatillon & Sons, of New York, in conjunction with the Burgess Battery Company. The device, known as the telepoise, works on the simple idea of interrupting a light beam a varying number of times depending on the momentary weight passing over a scale section, and converting the light impulse into corresponding electrical impulses for the actuation of an electric counter.

To weigh a continuous flow of material it is necessary simply to combine the size of the stream with the speed at which it moves. The varying weight of the load on the conveyor belt section is transmitted directly to the end of the fulcrumed weighing beam, causing this beam to swing over the scale of the load indicator at the far or free end.

This of course indicates the instantaneous weight. To keep tally of the continuous procession of varying weights, a cross arm is mounted close to the free end of the swinging beam, carrying a Burgess Radiovisor bridge or simplified form of selenium light-sensitive cell, together with a light source lamp. The electrical impulses produced by the light-sensitive cell are amplified by means of a two-stage amplifier. The output operates a Burgess vacuum contact relay capable of handling all the current required for the operation of one or more

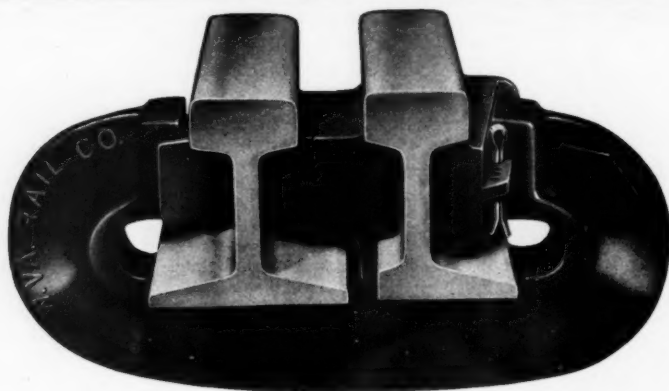


integrators or counters located at any distance from the scale. It is also possible to include time chart recorders to keep record of load variations throughout the day.

This robotized scale and its method of operation make an interesting chapter in the utilization of the photo-electric cell. Further information may be obtained from John Chatillon & Sons, 85 Cliff Street, New York City.

Clarence E. Searle, for past 17 years general representative in charge of sales for Allis-Chalmers Manufacturing Company, appointed vice president in charge of sales for the Worthington Pump and Machinery Corporation, Harrison, N. J.

Mr. Searle became associated with Allis-Chalmers in 1908, prior to which he was with the Western Electric Company and the Fort Wayne Electric Works (a division of General Electric).



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SILVER IN THE LIMELIGHT

(From page 15)

in the tariff, beginning July 1, 1932, repeal of the countervailing duties on coal, explosives and other articles, the flexible duty provision, the 50 percent ad valorem duties to offset commercial disadvantages and benefits to a third country and of the 4 and 6 cents per pound duties on pig tin to be levied when American mines produce 1,500 tons per year, are proposed by Representative Goldsborough, Democrat, Maryland. Exclusion of products of convict, forced and indentured labor is provided in a measure by Representative Kendall, Republican, Pennsylvania.

REPRESENTATIVE TINKHAM, Republican, Massachusetts, proposed an investigation as to the effect of laws relating to monopolies, restraints and unfair practices in commerce, and Senator Nye, and Representative Sinclair, Republicans, North Dakota, suggested measures to strengthen administration of the anti-trust laws under the Federal Trade Commission and a Federal Trade Court. The measures seek to free commerce from destructive cut-throat competition, to permit the continuance of small business concerns, to legalize trade practice conference rules and to forbid the sale of goods below cost.

Senator Couzens, Republican, Michigan, withdrew a resolution for an in-

vestigation of railroad problems after opposition to it had been registered on the ground that Congress had full information on the subject, while the House Rules Committee decided to bring in a resolution of Representative Rayburn, Democrat, Texas, for an investigation by the House Committee on Interstate Commerce of railroad, utility and other holding companies and oil and gas pipe lines. Investigation by the Interstate Commerce Commission and Shipping Board to equalize rail and ocean rates on export and import trade is suggested by Representative Luce, Republican, Massachusetts.

General labor conditions throughout the country would be investigated by the House Committee on Labor under a resolution proposed by Representative Connery, Democrat, Massachusetts, chairman. Representative LaGuardia, New York, proposed that industries adopt a five-day week and Representative McGugin, Kansas, suggested a six-hour day and four-shift day for labor in order that one-fourth more men than now occupied may be employed in industries.

A sub-committee of the House Military Committee has interviewed former bidders for lease of the Muscle Shoals, Ala., nitrate and power project, including the American Cyanamid Co., and is hearing members of the House in behalf of legislation they have introduced on the

subject. Recent bills to dispose of this Government project are by Senator Kean, New Jersey; Representatives Taylor and Lovett, Republicans, Tennessee; McSwain, South Carolina; Goss, Republican, Connecticut, and Almon, Democrat, Alabama.

Correction

In our January issue, page 11, we erroneously quoted the production of anthracite and its average return per ton.

The total production of anthracite in 1931 was 59,531,000 net tons.

In 1930 the average value per ton for all anthracite produced was \$5.10 per net ton, including the estimated value on the colliery consumption. The average value per ton for the commercial production was \$5.39. On the gross ton basis, these values would have been \$5.72 and \$6.04 respectively. We are indebted to E. W. Parker, director of the Anthracite Bureau of Information, for these figures, which he says will approximate the 1931 values when they are published.

The increasing use of gas, as well as of fuel oil, moved largely by pipe lines and tank steamers, has caused a substantial decline in the tonnage of coal handled by railroads in the last 10 years, according to the Interstate Commerce Commission. "In 1930 Pennsylvania produced 18,000,000 fewer tons of anthracite than in 1920 and about 15,000,000 tons less than the annual average from 1909 to 1913," it says. "In 1929 natural gas displaced 77,500,000 tons of bituminous."



Complete control of car movement under loading booms or chutes at the tippie without chocks, brakes or extra man power. Holmes Electric Car Retarders have 300 ft. rope capacity with 300 f.p.m. rewind. Protected from elements and dirt. Extra large brake. For more complete information about the easy, sure operation of this car retarder write for Bulletin 62.

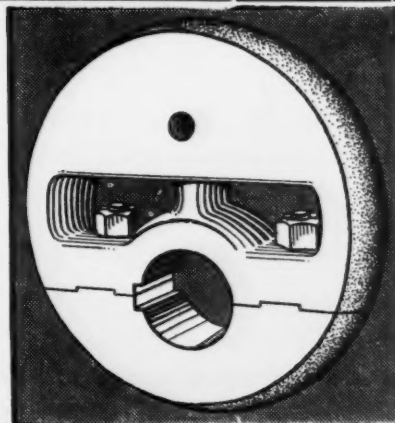
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DRIVING EQUIPMENT:
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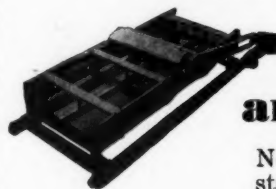
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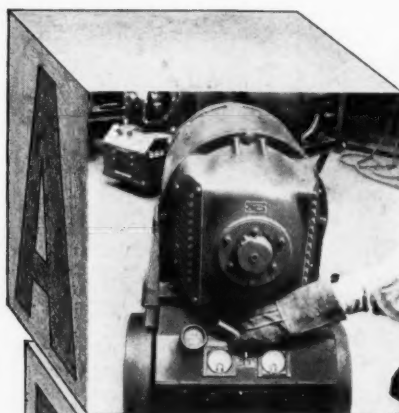
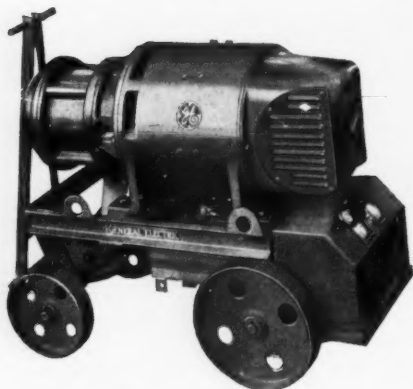
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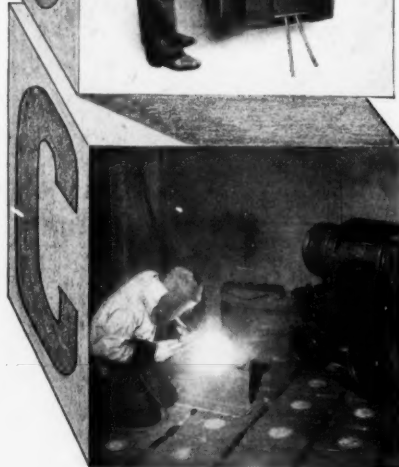
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